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ALONG AND ACROSS THE GREAT WALL OF CHINA

By FREDERICK G. CLAPP

[With separate map, Pl. III, facing p. 248.]

On a cold winter's day, February 17, 1914, with the wind blowing a gale, through drifting sands which cut one's face like a knife, the exploration of the Great Wall of which these pages tell was started by three Americans.¹ We plodded across the country from Shanhaikwan towards the seashore, three miles distant, along the base of the Great Wall. With difficulty we gained its top and finally, though almost blown off, succeeded in walking along it for a mile or more to the Gulf of Liaotung (Fig. 2). Then we vaguely realized that we were standing on the oldest artificial structure we had even seen, and one of the oldest in the world. What an inspiration for a writer to tramp its "ten thousand li"² into Chinese Turkestan!

This was our first introduction to the Great Wall, and we unanimously declared it to be the most impressive landmark we had ever seen—not in its height or breadth alone, but in its length and continuity, and in the magnitude of the task which was successfully accomplished twenty centuries ago by a people whom we had hitherto ignorantly classed as an inferior race.

WHERE THE GREAT WALL MEETS THE SEA

The name Shanhaikwan signifies "Mountain-Sea Barrier," or "Between Mountain and Sea," a designation correctly describing the situation of the city three miles from the sea and about the same distance from the granite mountains, on a broad plain across which tens of thousands of Chinese,

¹ Besides the writer, there were in the party Myron L. Fuller, a prominent American geologist; Kenneth T. McKoy, a fellow citizen who had the fortune also to be a native of China, thoroughly versed in its language and customs; and also two newly made Chinese friends, Wu Kuei-ling and Ho Yen-sun, with all of whom we were destined to become closely acquainted during the succeeding year.

² The Chinese name Wan-li-ch'ang ch'eng signifies "ten-thousand-li-long rampart." The li is the Chinese mile, about one-third of an English mile.

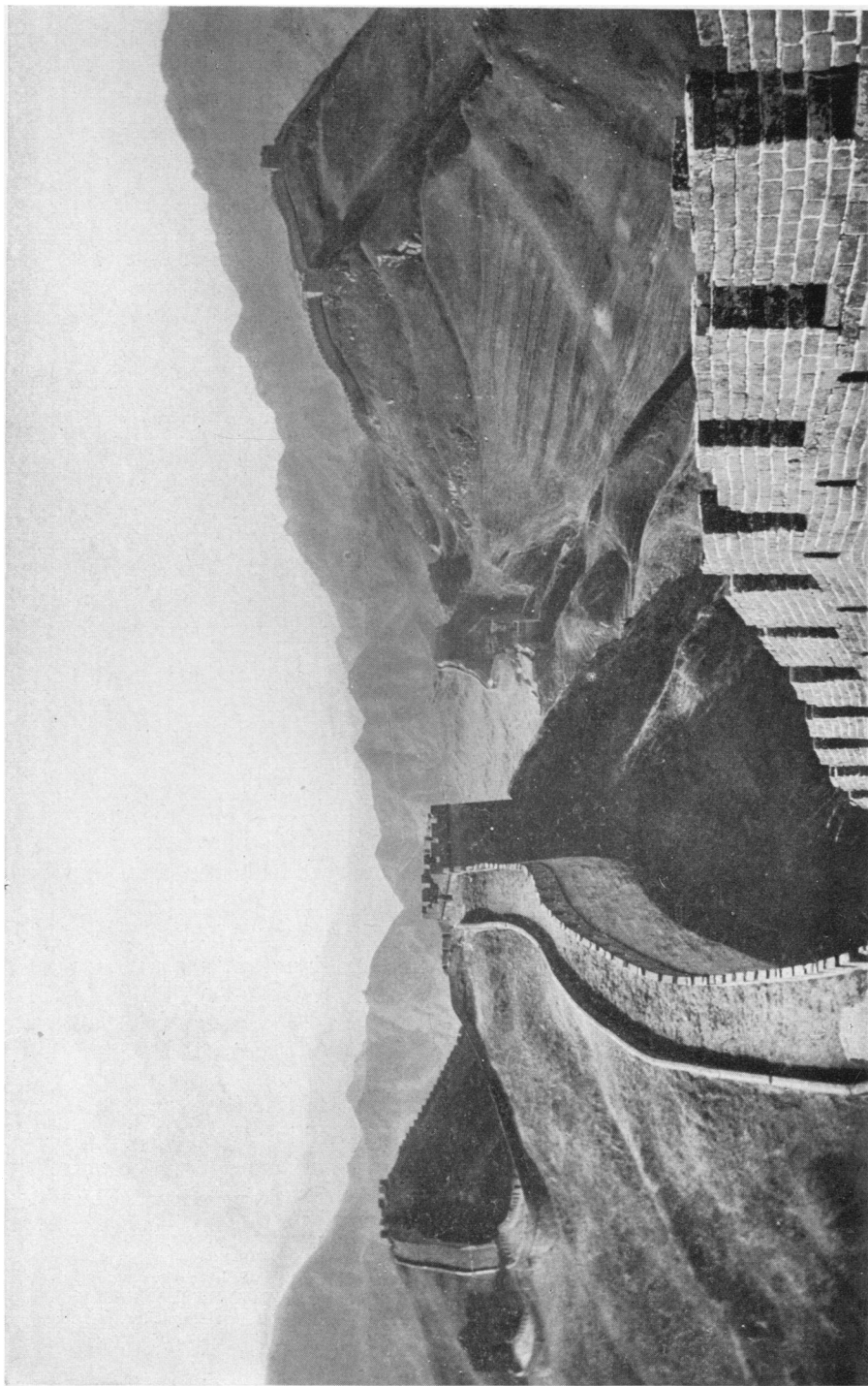


FIG. 1.—The Great Wall (inner branch) at Nankow Pass, 35 miles northwest of Peking. The main trade route from Peking to Mongolia, in its ascent from the lowland plain on which the capital city stands, at this point crosses the first of the ranges which form the eastern scarp border of the Mongolian Plateau. (All photos, except Figs. 2, 6, 8, 14, 15, 18, 20, by the author.)

Mongolians, and Manchurians have marched and fought. The eastern wall of the city is coincident with the Great Wall of China, here penetrated by the famous gate known as Hsia-tien-ti-e-mên ("Under Heaven Number One Gate," or "The First Gate in the World"; Fig. 4). At this extremity the wall consists of a high earthen core coated on the outside with bricks.

From Shanhaikwan a pleasant day's excursion can be made along the Great Wall to the summit of Koku Shan, nearly 2,000 feet above the city. Practically all of the wall between the city and the top of the mountains—a distance of five miles—is still standing. The entire length consists of stone or brick steps averaging a foot in height and ascending at a gradient of from 30° to 60°. Aside from the wall, the mountain itself is interesting, since it is part of a great porphyritic range abounding in precipitous cliffs hundreds of feet high, in ancient temples scattered here and there on the hillside, and in extended views up the deep valley of the Koku River. A grand view of the Pei Shan range to the west, capped with snow and cloud, may also be had. Dotted distant prominences are seen watchtowers, relics of a time when China was well defended from the warlike northern tribes. Now, on the contrary, all is deserted, and only at the eastern end of the wall within a few miles of the sea does the presence of the several foreign military encampments—up to the war some foreign troops still remained from the occupation pursuant to the Treaty of Peking—suggest that the line is still of some military value.

Naturally the most noticeable feature in the view from Koku Shan is the wall stretching off southeast across the city of Shanhaikwan to the gulf, seven miles away (Fig. 3). The coast lines can be followed by the eye many miles to the southwest, and in the far distance can be seen the hills of Pehtaiho, the principal summer resort of the foreigners in Peking and Tientsin. Along the gulf a broad plain extends several miles back to the mountains, consisting of igneous rocks of remote geological age, which rise ridge beyond ridge to the south, west, and northwest, cut up by innumerable canyons.

THE "PALISADES," THE MANCHURIAN EXTENSION

The line of defense known as the "Palisades" began on the Yalu River and connected with the Great Wall proper at an angle on the border between Chihli Province and Manchuria north of Shanhaikwan. This line is designated on some maps as a ruined wall. Since our geological expedition crossed it without seeing any structure, it is evidently not everywhere preserved. This wall is, however, delineated on certain maps as far north as the latitude of Mukden, 200 miles away, and there is historical record that it formerly extended in Manchuria at least 400 miles.

FROM SHANHAIKWAN TO THE EASTERN BIFURCATION

From Shanhaikwan the massive masonry and brick wall hardly maintains a uniform direction for a single mile. It climbs mountains, caps pinnacles, crosses valleys, and is on the whole so crooked that to reach the eastern bifurcation near Sihai, 125 miles west in an air line, where it branches, it takes a course of about 300 miles.

We had visited the Great Wall at Shanhaikwan in midwinter. Our



FIG. 2—The beginning of the Great Wall on the Gulf of Liaotung near Shanhaikwan. (Photo by K.T. McCoy.)

next view of it was at Kupehkwow (Figs. 5 and 7) on a balmy day in April, when wheat was green in the valleys, spring vegetables were up, and fruit trees, violets, and dandelions were in bloom. About noon we caught sight of a long line of watchtowers on the crest of distant mountains; at two o'clock we arrived close to the wall in the valley of the Chao Ho and saw the frowning battlements, the watchtowers, and the long snakelike line of brick and stone winding up the hillside from crest to crest. The wall remained in sight nearly all day, its towers and battlements standing out in bold relief against the sky.

After nearly two months in the wintry climate and bandit-infested region of northern Chihli, we were as happy as our Chinese caravaneers to be again inside the wall. The difference in prosperity was especially noticeable. From the lowlands to the south in the vicinity of Miyünhsien and Hwaijowhsien the wall can be seen making great zigzags across the face of the gneissic Peita Shan, which rises nearly a mile high.

FROM THE EASTERN BIFURCATION TO THE HWANG HO

About 40 miles north of Peking, at an altitude of 3,300 feet, the Great Wall forks, the inner branch trending southwest to and beyond Nankow Pass, while the outer and more direct branch continues its mountainous way across western Chihli and the whole breadth of Shansi Province to the Hwang Ho (Yellow River). The distance in an air line from the eastern



FIG. 3

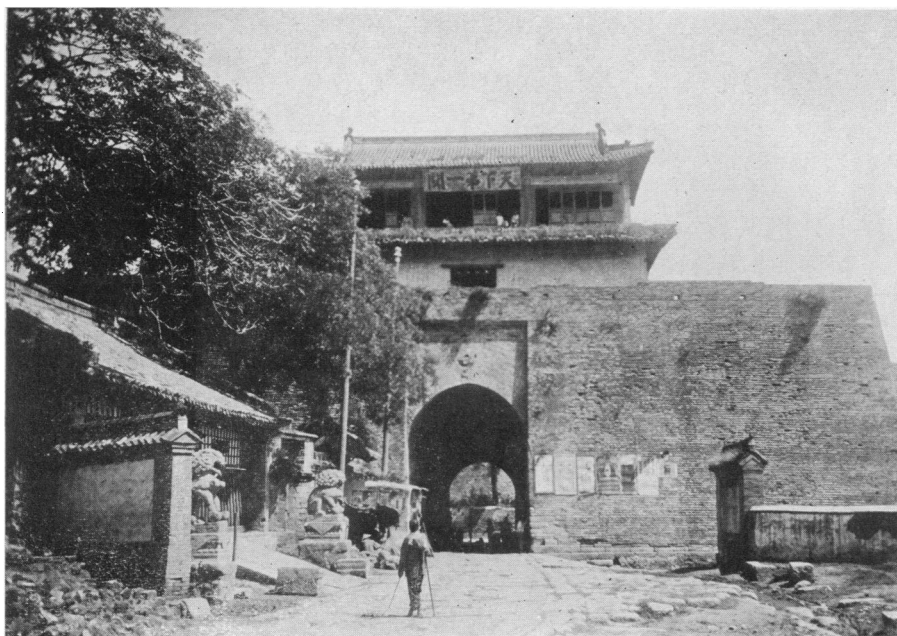


FIG 4

FIG. 3—The Great Wall stretching from Koku Shan, a mountain about five miles north of Shanhaikwan, across the lowland plain to the Gulf of Liaotung.

FIG. 4—The first gate in the Great Wall, which is also the eastern gate of Shanhaikwan.

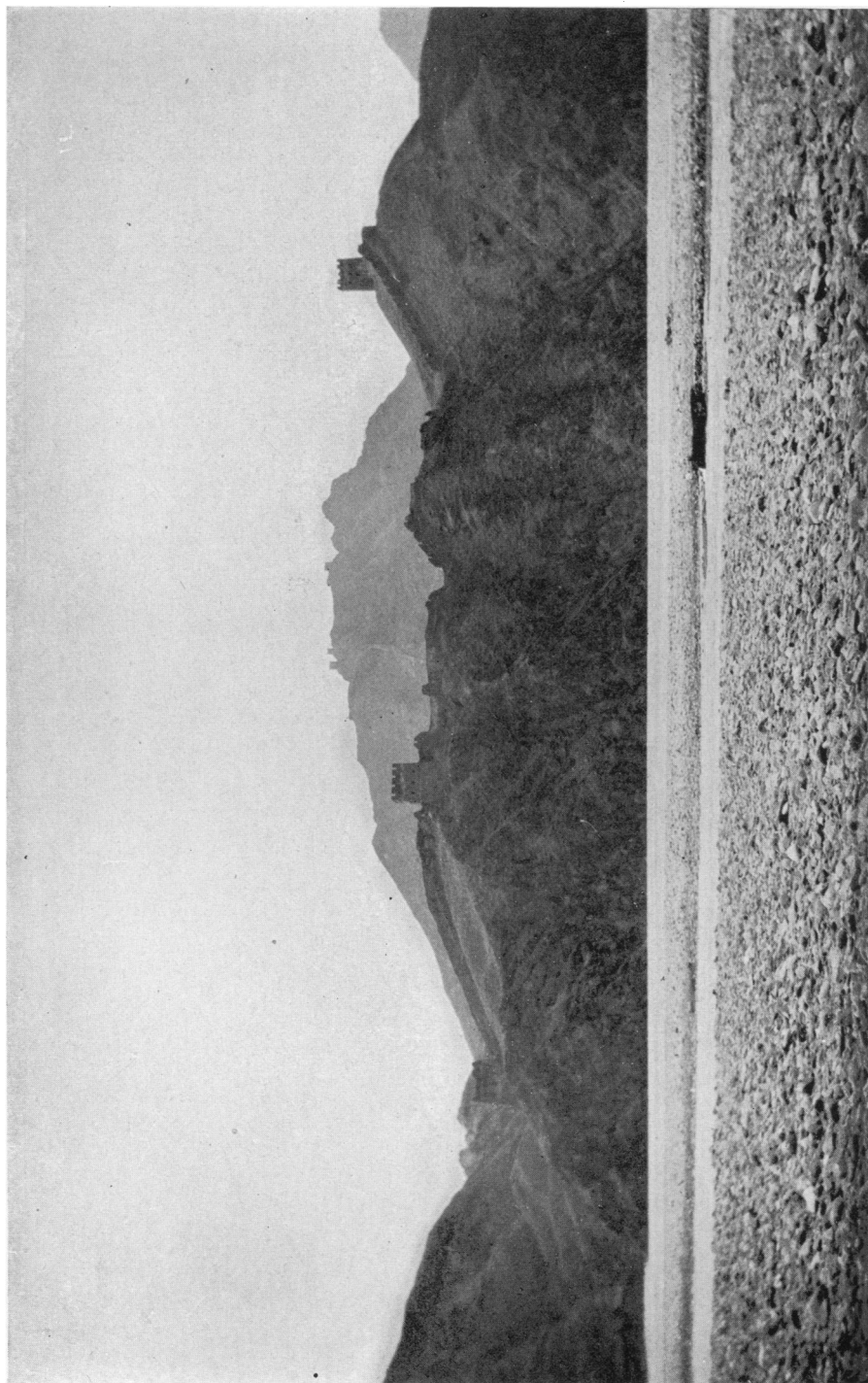


FIG. 5—The Great Wall at Kupehkw, 65 miles northeast of Peking, from the valley of the Chao Ho.

bifurcation to the Hwang Ho is 380 miles; but the total length of this section of the wall, following meanders, is 500 miles.

The eastern bifurcation, or point of divergence of the inner and outer branches, appears very definite on the map, but in reality one or more cross walls exist in the fork. A few miles northwest of the main junction is the city of Sihai, once an important place but today almost a ruin. Though only 42 miles in a direct line from Peking, the city, lying behind a mountain range crossed by a difficult pass at 3,400 feet, is very inaccessible. It had not been visited by foreigners for two years.

AN UNEXPLORED WILDERNESS AND RUINED WALLS

The wall north of Sihai follows the mountain ridge and forms the inner boundary of an uninhabited wilderness more than 50 miles across, which the maps record as "unexplored." They are undoubtedly correct, since no magistrate or guide or "oldest inhabitant" in any of the villages visited was able to tell us of any route across it. After leaving Sihai we passed at least five ruins of ancient city walls, crumbling to decay after standing for twenty-three centuries. On prominent hills brick watchtowers (Fig. 9) and signal stations, equally ancient, are seen at intervals of a mile or two, all the way to Tushihkow. By them news was presumably flashed to the gates of the inner wall whenever the Mongols succeeded in breaking through the outer one. On the mountain tops to the north and east of the traveled route the turrets of the Great Wall were frequently visible.

Half a mile north of Shangpu, in the valley of a tributary to the Pai Ho an old wall crosses the valley in an east-west direction, but nothing more is known of it. On published maps the Great Wall appears on the mountain crest, close to the west of Lungmenhsien, but it was not seen at that place. Between Sihai and Kalgan the wall makes a sharp loop northwards. At the head of the loop lies the city of Tushihkow. Here, after crossing high mountain passes and traveling for days on narrow trails, we were back again on cart roads and at the end of another section of the journey. Tushihkow is a good-sized walled city just inside the Great Wall, on the main highway from Peking to Dolon-nor. Four miles northwest of that city the traveled road and the main valley cut the Great Wall, which there runs diagonally in a southwestern direction across mountains of basalt and metamorphic rocks at an elevation of nearly a mile above sea level.

ON THE WAY TO KALGAN

On the edge of the basaltic plateau of Mongolia, 15 miles by cart road north of Kalgan, is a spur or cross wall called the Piencheng trending east and west for several miles. Another of these spurs is mapped 15 miles west of Tushihkow and several others on the outside of the Great Wall west from Kalgan. They are doubtless more numerous than is known.

From the Piencheng to Kalgan the Great Wall itself is either closely adjacent to the highway or is visible on the mountains to the west. It is situated at an altitude of 3,000 to 6,000 feet on rugged basaltic flows capping great gravel beds.

The plateau over which most of the Tushihkow and Dolon-nor route lies is a rolling sand-strewn expanse of lava flows from which low hills occasionally rise. When the sand is not driving, the plateau resembles parts of Saskatchewan and North Dakota. Some portions make fine grazing country, on which herds of sheep, cattle, horses, and camels are seen (Fig. 10).

The descent from the plateau to the valleys below is canyon-like, and grand views could presumably be obtained in clear weather. The poor road becomes a great highway, lined for miles with mules, camels, and carts, transporting goods of various kinds into Mongolia (Fig. 11) and seeming to belie the statement, frequently made, that trade with Mongolia is at an end.

THE LOESS COUNTRY

Far from being clear, however, the day of our descent into Kalgan was one of China's "yellow days," during which the wind blows a gale and the air is full of a mist of fine particles, which, even in the best-built houses, sift in around windows and doors and coat everything with a thin film of yellow dust. This dust is from the famous loess (*huang-tu*) of northern China, a substance which makes this part of the country entirely different geographically and agriculturally from southern China. The dust storms, though a source of discomfort to the residents, are in reality the cause of widespread well-being, since they transport every year millions of tons of fertile loess from the plateaus of Mongolia to the cultivable lower lands of northern and central China.

The loess is a peculiar fine silt or loam hundreds of feet deep which covers vast areas of northern China.³ The majority of the villages west of Chihli are built on the loess or in it, for the houses of many localities are simply caves dug in this remarkable formation. It lies from a few hundred feet above sea level to 7,000 feet above and generally presents a topography of sloping plains, miles in extent, intersected by canyons. Cultivation is largely limited to the loess.

KALGAN, THE GATE TO MONGOLIA

Kalgan (Mongol, *khalga*=pass) lies in a valley about 2,500 feet above sea level, between basaltic mountains rising 1,000 feet higher. Kalgan occupies a strategic situation on the road from Peking to Mongolia. In the Ming

³ Regarding theories of origin and formation of the loess see Bailey Willis, Eliot Blackwelder, and R. H. Sargent: *Research in China*, Vol. 1 (*Descriptive Topography and Geology*), *Carnegie Instn. Pubs.* No. 54, Washington, D. C., 1907, pp. 183-196 and 242-256.

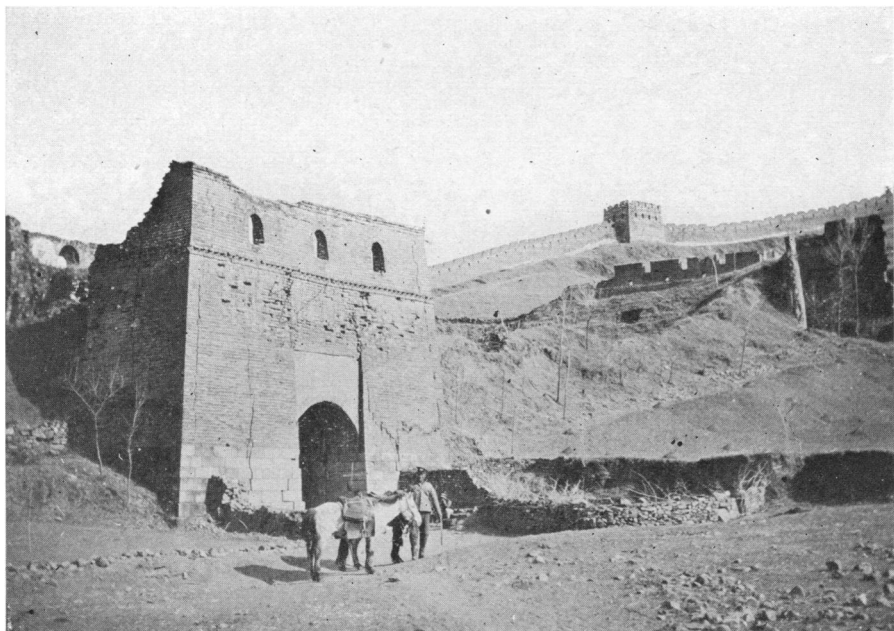


FIG. 6

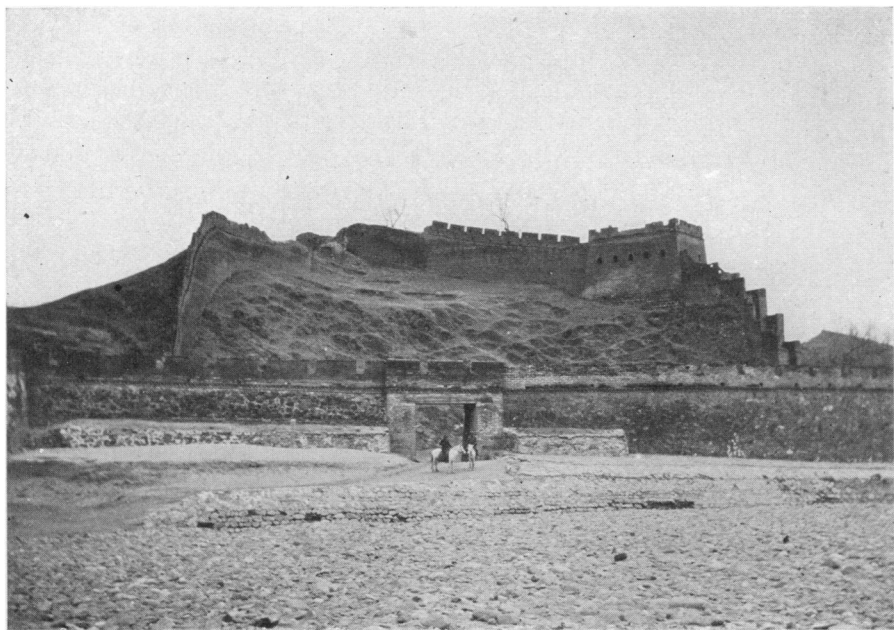


FIG. 7

FIG. 6—Gate in the Great Wall at Hsifengkow, Chihli, a village two miles east of where the wall crosses the Lwan Ho. (Photo by Myron L. Fuller.)

FIG. 7—A gate of Kupehkow with the Great Wall in the background.

Dynasty (fourteenth to seventeenth centuries) this place was an international market; under the succeeding Empire it was no less a place of great commercial and military importance, and today the camel caravans that start from Kalgan to cross the Desert of Gobi are among the largest in Asia. The wall at this place is 70 miles outside of the inner wall at Nankow. At Kalgan the wall extends along the ridge of hills in a nearly east-west direction and is very much in ruins except where it crosses the city and is kept in good repair. Many of the towers remain but are somewhat decayed.

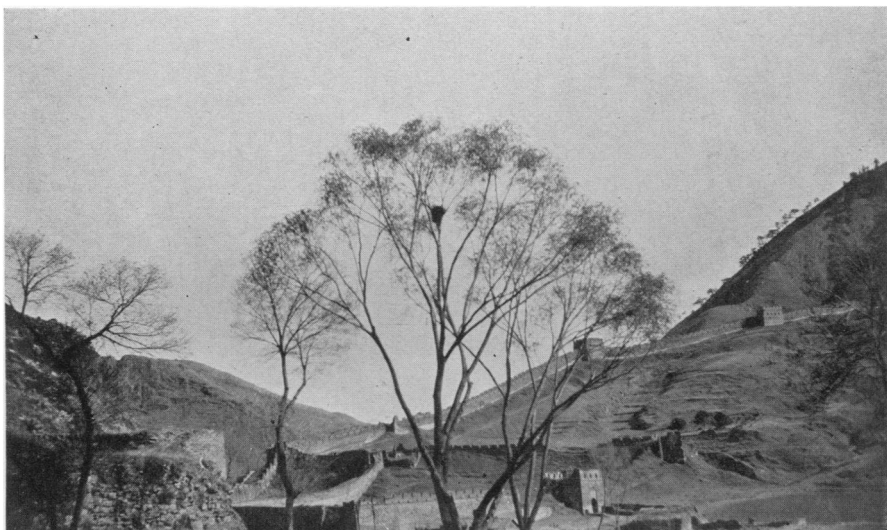


FIG. 8—The Great Wall at Hsifengkow. See also Fig. 6. (Photo by K. T. McCoy.)

One afternoon, 35 miles west from Kalgan, in the center of the village known as Jih-erh-ling, we came upon a stone four feet in height, upon which was inscribed the statement that it marks the boundary line between the provinces of Chihli and Shansi. The stone, like many of the oldest structures, stands on a flat loess plain about 30 feet above the present level of the highway, which has been gradually worn down by weather and travel, until, with the modern houses by its side, it now lies in a valley of considerable depth. Many temples and old city walls are on elevated pinnacles or masses of loess, which they have protected from erosion, while the surrounding land has been worn away. Many of the highways have been deepened till they lie 50 feet or more below their former level.

IN SHANSI PROVINCE

The main traveled cart road west of Kalgan was out of sight of the wall for 60 miles on account of the looping of the latter to the north, but 10

miles inside of Shansi Province the wall is in plain sight along the Shuimokow Shan, which it follows for over 30 miles, though not all the way on the mountain crests. Continuing west, it makes several loops, passing some 20 miles northwest of Tatungfu, the last telegraph station on the route west, a place of about 250,000 inhabitants, who are crowded within walls a little less than one mile square.

THE INNER WALL FROM THE EASTERN BIFURCATION TO THE HWANG HO

From its junction with the main wall 40 miles north of Peking, a massive

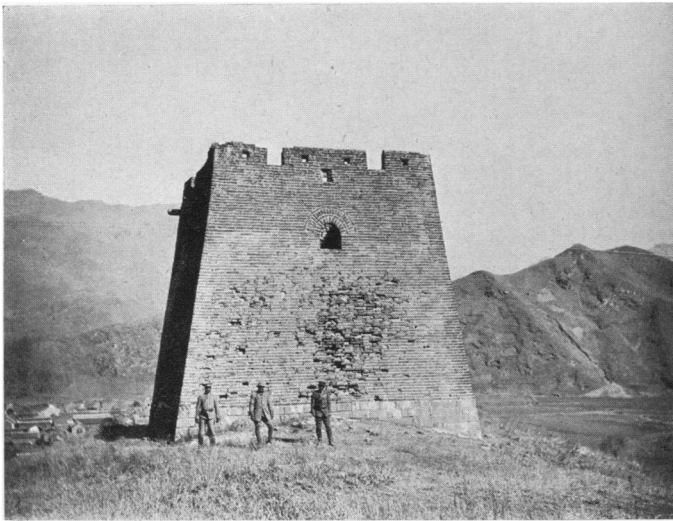


FIG. 9—Old watchtower at Sihai, near the eastern bifurcation of the Great Wall.

line of wall extends southwest with many deviations past Nankow Pass to a point on the border of Shansi and Chihli, thence west and northwest to the junction with the outer wall 30 miles east of the Hwang Ho. The total length of this inner wall, following meanders, is about 400 miles. It is not everywhere preserved, though throughout Chihli Province it is very massive and prominent.

This part of the Great Wall was visited by the writer twice by train in the spring of 1914, and next, on donkey back, in April, 1915. Unlike most trips in China, this is a regular excursion for tourists in connection with the trip to the Ming Tombs. It is only 11 miles from Nankow by rail, up a deep and narrow mountain valley which reaches an altitude of 2,000 feet above sea level, at the end of which the Great Wall itself is encountered, in places at least 3,500 feet above sea level (Figs. 1 and 13).

NANKOW, "THE SOUTHERN PASS"

The railroad station at Nankow is one mile from the walled town, a small

place that, before the days of the railroad, subsisted on caravan traffic to and from Kalgan. Most of the buildings in Nankow are inns. The place has, however, lost its former prestige since Monnier in 1895 described the stream of traffic continuously passing through it on the great commercial road to the north. "There, from year's end to year's end, day and night, pass the loads of wool and furs going down from Mongolia to Peking, and bricks of tea from Tientsin for Kiakhta, on the Siberian frontier."⁴

Nankow means "Southern Pass." The Peking-Kalgan railway approaches it through the "Defile of Chüyung," about 13 miles long. At the lower end it is wild and gloomy, bounded by towering crags, scarcely leaving room for the stony torrent and the railroad; and it has consequently always been a point of strategic importance. There are five subsidiary walls for the protection of the pass, the first of these being the wall and adjoining forts of Nankow, while the other walls are lower down.

About five miles from Nankow is the almost uninhabited village of Chü-yungkwan, which, nevertheless, has walls and fortifications four miles in extent and boasts its full share of history, being on the Imperial Road and having proved a barrier to the siege of Jenghis Khan. Here the Imperial Road passes under a fine octagonal marble gate, known as the Kuochieh Ta (Tower Which Crosses the Street), in which are carved figures from Hindu mythology and a multitude of Buddhas. On the gate are inscribed two religious inscriptions dating from 1345 A. D. in six languages or characters, Sanskrit, Tibetan, Mongolian "in Phag's-pa lama characters," Turk-wigur, Hsi-hsia (Tangut), and Chinese.⁵ At a number of places in the vicinity inscriptions in Sanskrit, Tibetan, and Manchu are carved on the rocks.

THE SOUTHERN BRANCH WALL

Extending south from the inner wall near the Wutai Shan in eastern Shansi Province, forming the border between Shansi and Chihli for over 200 miles, is another branch wall. This wall is seldom well preserved but extends in some form as far as the latitude of Shuntehfu, a distance, following meanders, of 230 miles, and one detached remnant has been reported 40 miles farther south.

THE FRONTIER WALL ALONG THE NORTHERN EDGE OF SHENSI

On the left bank of the Hwang Ho, between Shansi and Shensi Provinces, the wall is continued 40 miles southward; thence it runs southwest to the western side of the great loop of the Hwang Ho, defining first the boundary between Shensi and the Ordos Desert of Inner Mongolia, and in

⁴Marcel Monnier: *L'Empire du Milieu*, 1895.

⁵Translations of these inscriptions were made by various writers. They are quoted in Madrolle's guidebook to "Northern China," London and Paris, 1912, pp. 71-72.



FIG. 10—Camels grazing; road from Kalgan to Dolon-nor.

FIG. 11—Carts hauling stores to Mongolia, Han-nor-ba, 15 miles north of Kalgan, on road to Urga.

FIG. 12—Camel caravan at Laoyehmiao, Chihli, 10 miles southwest of Kupehkwow.

the western 60 miles of this course part of the boundary between Kansu Province and Mongolia.

THE ORDOS DESERT

In Shensi Province the wall was first seen by us on June 17, after three days' traveling, near Shenmuhsien. The scenery had been grand all day. In the evening, as we approached the Niuchwan Ho and looked off to the north, the Ordos Desert, a part of the great Desert of Gobi, was seen for the first time, and we realized that Clark and Sowerby's description⁶ is most appropriate:

The country is wild and inexpressibly dreary. Very few trees are to be seen, and the bare brown cliffs and yellow sand are devoid of any vegetation, save an occasional tuft of some sage scrub. In places, especially where, as in the northeast, it rises to any prominence, gloomy chasms, with deadly quicksands lurking in their depths, gape in the sandstone and the half-formed shale. To north and west the prospect is heartbreaking. Sand-dunes and sand-dunes and again sand-dunes shifting with every storm and obliterating every landmark. Only here and there, as tiny islands in a sea of desolation, small clusters of mud huts, where some little oasis marks the site of a spring or well.

CONQUESTS OF THE DESERT

All published maps record this wall as the "Great Wall." At Shenmu, however, the natives said: "This is *not* the Great Wall; this is the 'First Frontier Wall,' built only four hundred years ago; the 'Great Wall' is farther north." And they added that the "Second Frontier Wall" lies about 30 miles beyond the present frontier, and the "Great Wall" a long way beyond that. History furthermore appears to corroborate the local tradition that the ruins of the real Great Wall lie buried in the desert sands somewhere in the Ordos. Their exact location makes an interesting archeological and historical problem. The past greatness and prosperity of the region is attested by numerous walled cities, ancient buried or ruined highways, and the frequent presence, under the sand dunes, of a rich soil which must have constituted a great fertile valley in some distant period. On this region the northern sands have been encroaching, passing one wall after another, and are now far beyond the southernmost one, relentlessly conquering a once prosperous country on which the fiercest Mongol onslaughts were of little avail.

From Shenmuhsien we followed the Frontier Wall, here an earthen wall, for three days into Yülinfu, over a trail said never to have been traveled by foreigners. We journeyed much of the time across the rolling sandy waste 5,000 feet above the sea which comprises the edge of the desert. On the hills many temples, watchtowers, and the remains of the Frontier Wall (Figs. 16 and 19) testified to the former importance of the region. Now

⁶ R. S. Clark and A. de C. Sowerby: *Through Shên-kan*, London and Leipsic, 1912, p. 22.

the region is almost deserted. This was not the Dolon-nor type of desert, in which enough grass frequently grows to make good grazing and on which villages occur at intervals. The Ordos Desert consists of nothing but hills and valleys of sand, hot and soft, that was driven all day into our faces by a stiff wind (Fig. 15); and there is little vegetation except small scrub on some of the hills. One day we passed through the city of Changlopu,



FIG. 13—The inner branch of the Great Wall at Nankow Pass. (See also Fig. 1.)

which is so rapidly being buried that one must climb over the walls on sand dunes in order to enter (Figs. 17 and 18).

YÜLINFU, AN OASIS OF THE ORDOS DESERT

On the sixth day west of the Hwang Ho we passed a large temple and entered the main gate of Yülinfu, when a wonderful transformation met the eyes. Not a trace existed of the exterior inhospitable scenes; but above the thousands of neat housetops which lay below us we gazed across a broad and green valley, through which flows the Yülin Ho, making a scene as picturesque as could be desired (Fig. 21). Descending the hill we entered the main street, lined with crowds as usual, but the busiest since leaving Tatungfu, as Yülinfu is one of the large cities of China. Yülinfu is comparable with Kupehkow, Kalgan, and Tatungfu in its geographical importance. It is the center for trade between the Chinese of Shensi and the Mongols of the southern Ordos Desert. The chief products of its markets

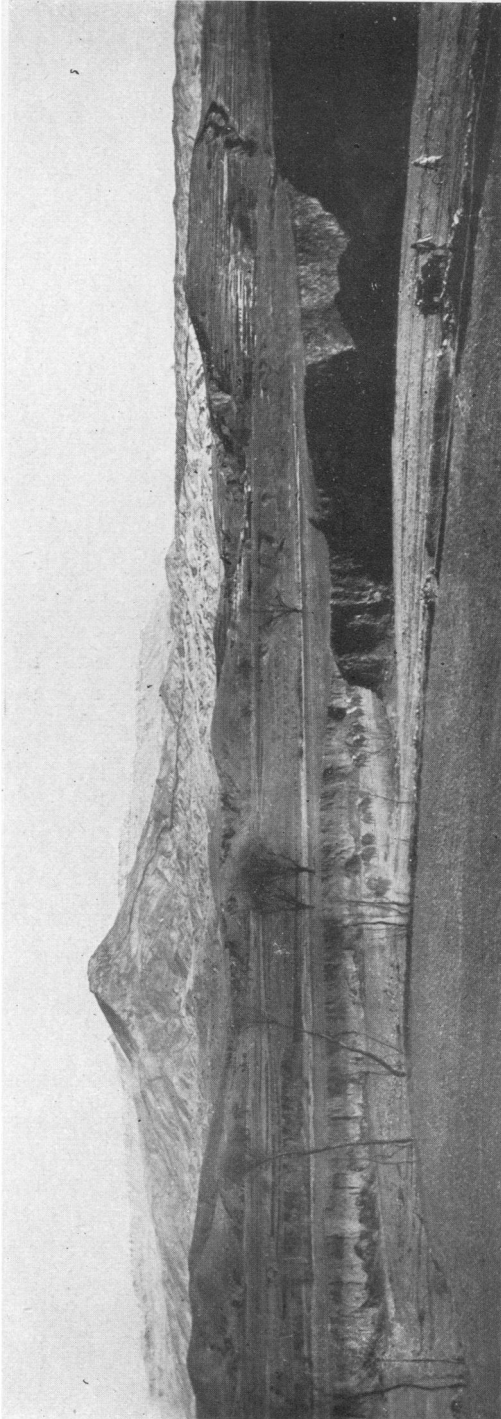


FIG. 14—The mountains along which the inner branch of the Great Wall lies (to be made out along the crest leading up to the peak in the left background), seen from near Hsiangyangkow, a village on the Hun Ho, three miles south of the wall and 20 miles southwest of Nankow Pass. Notice the road in the foreground, worn down by travel in the loess, a peculiar fine silt or loam sometimes hundreds of feet deep which is derived from the deserts of Mongolia and covers vast areas of northern China. (Photo by F. A. Herald.)

are hides, skins, wool, hair, blankets, shoes, socks, etc.; like Kalgan it is noted for its horse fairs. The name Yülinfu means "Elm-wood Prefecture" and would appear to indicate that the city was named at a time when elms were abundant, before the sands of the Ordos Desert had overrun the region. At present thin grass, sagebrush, and a few willows constitute about the only natural vegetation.

On the eastern side the desert sands have been piled high against the city wall, affording an easy entrance to belated travelers who may arrive after the closing of the gates for the night.

THE FRONTIER WALL AND THE GREAT WALL

At Yülinfu a talk with the high commissioner, a well-educated man, who has traveled outside of China, confirmed our theory that the wall now forming the northern boundary of Shensi and designated as the

“Great Wall” on all maps is in reality the “Frontier Wall,” built about the fifteenth century of our era, while the true Great Wall, built over two thousand years ago, is situated perhaps a hundred miles farther north, near the Hwang Ho, in the Ordos Desert. The intervening country was once extremely prosperous and had a large Chinese population, but now its habitable portions contain only Mongolians.

Since the true Great Wall seems to be beyond our knowledge, so far as the Ordos Desert section is concerned, we must use the Frontier Wall for our estimates of length. The distance across the great loop of the Hwang



FIG. 15—Sand dunes at the edge of the Ordos Desert near Yülinfu. Camel caravan in left background. (Photo by E. L. Estabrook.)

Ho in a straight line is 250 miles, and the length of the Frontier Wall is 350 miles.

THE DESERT LOOP

The city of Ningsiafu, in northeastern Kansu Province, is 4,000 feet above sea level, at the corner of the Great Wall where the latter turns at an angle of almost 90° and thence trends southwest. Northeast of the city are three arms of the wall extending towards the Hwang Ho.

Now, after having visited Ningsiafu, the writer is at as much of a loss as are the published maps regarding the course of the wall in the first 30 miles west of the northward course of the Hwang Ho. The impression exists that there is a gap west of Ningsiafu but that the main Great Wall is continuous for a few miles farther north along the Ala Shan on the border of Kansu and Mongolia. The distance in a direct line from the known portion of the wall west of Ningsiafu to the western bifurcation at

Tatsing is 160 miles, but the length of this section of the wall is close to 250 miles.

The portion of the Great Wall from Ningsiafu to Liangchowfu has been christened by Geil the "Desert Loop."⁷ It is largely within the Province of Kansu but for a part of the distance forms the boundary of Mongolia along the Hsi or Ala Shan. The country outside the wall here is included in the Desert of Gobi. The greater part of Geil's route in this section lay across a monotonous stretch of sand where deserted villages were numerous. The second city in importance along the Great Wall is Liangchowfu, which is said by Geil to contain a total population of 20,000 families.

THE MAIN LOOP OF KANSU

In the Province of Kansu there is an inner wall about 250 miles in length, which branches from the Great Wall at Chungwei on the Hwang Ho, thence trending south along the river and following the western bank for over 100 miles to beyond Lanchowfu. There, where the river makes a sharp bend, the wall turns northwest along the Pingfan Ho for nearly 100 miles; it then bends north and east at the pass Wushao Ling, where it reaches its greatest elevation, about 9,900 feet above sea level, and again joins the main wall at Tatsing. From Hungcheng to a point north of the Wushao Ling the wall follows the great highway that connects Lanchowfu with Kashgar. The entire inner loop of Kansu is, according to Geil, in ruins and grass-covered.

THE TIBETAN LOOP

The name "Tibetan Loop" may not be strictly correct, since the wall does not touch the true boundary of Tibet, but the term is retained here because the wall extends far in that direction. This loop is about 400 miles in length. It leaves the main Kansu loop at Lanchowfu, rejoining it again near Kulang, north of the Wushao Ling.

Kumbum, on the Tibetan Loop, south of Siningfu, is about 30 miles from the Tibetan border. This city is, next to Lhasa, the most important lamasery in the world, being the home of 3,600 lamas and a favorite resort of pilgrims. The Wall here is variously known as Pien Cheng (Boundary Wall), Chang Cheng (Long Wall), and Wuling Cheng (Five Ranges Wall), the latter signifying that it passes over five ranges of hills.

Siningfu is situated inside the Tibetan Loop on the gentle slopes of the Nan Shan foothills, overlooking several fertile valleys. It has high, massive brick bastions and battlemented walls and is entered through strong gates, the east gate having an enormous porteullis. The city has temples, official buildings, barracks, and several modern schools. Borax, rhubarb, musk, antlers, wool, furs, and fish from the beautiful Koko Nor (lake) are imported from Tibet.

The Tibetan Loop apparently was discovered by Henry French Ridley,

⁷ W. E. Geil: *The Great Wall of China*, Shanghai, 1909, pp. 176-193.

“the hero of Sining” during the Mohammedan rebellion of 1895-1896. This loop appears on no published map except that accompanying Geil’s volume and that drawn for the present paper. While it is not of great antiquity, it is believed by scholars to lie on the line of an ancient wall of great size dating from the Chin Dynasty.

THE WALL IN THE PANHANDLE OF CHINA

The remaining undescribed section of the wall proper is that in the “panhandle” of Kansu Province. It leaves the Kansu loop at Tatsing and follows in a general way the border of Mongolia for 350 miles, continuing thence to Chiayükwan, a total distance of 450 miles (air line distance 320) from Tatsing, and protecting on the north the cities of Liangchow, Kanchow, and Suchow. Liangchow is described as an attractive city, but many of the city walls near the line of the Great Wall northwest of the city are mere skeletons, containing neither population nor buildings. The Great Wall in this portion was doubtless once veneered with brick and stone, but only a loess core now remains.

The city of Kanchow, though on the line of the Great Wall during Marco Polo’s visit, has now been moved seven miles south. The region in which it lies is a rich agricultural one, producing wheat, pears, beans, melons, and hemp. It is famous, too, as the home of the world’s rhubarb stock. In the days of Marco Polo Kanchow had three Christian churches but now has only one.

Suchow, the northwesternmost city of China proper, is situated 5,053 feet above the sea, at and very near to the western end of the Great Wall. It is a place of 4,000 families and is famous for its production of jade.

END OF THE GREAT WALL IN CHINA PROPER

Twenty-three miles west of Suchow is Chiayükwan, the western terminus of the Great Wall. Just outside of Chiayükwan is a stone tablet, bearing an inscription signifying the importance of this outermost post of defense on the great military barrier.

According to Geil, however, the real end of the Great Wall is not at Chiayükwan but five miles southwest of it on the banks of the Tapai Ho (Big White River) and in sight of the mountains of Tibet. Not a sign of human life exists in this desolate spot. The wall stops short at the brink of a precipice 200 feet high, below which flows the great river. The color of the stream is in great contrast to that of the Hwang Ho, this river being the product of melting snows in the neighboring mountains of Tibet flowing through limestone, while the Hwang Ho derives its sediment largely from the finely disseminated loess.

THE GREAT WALL IN CHINESE TURKESTAN

Although Chiayükwan may be the western end of the Great Wall of

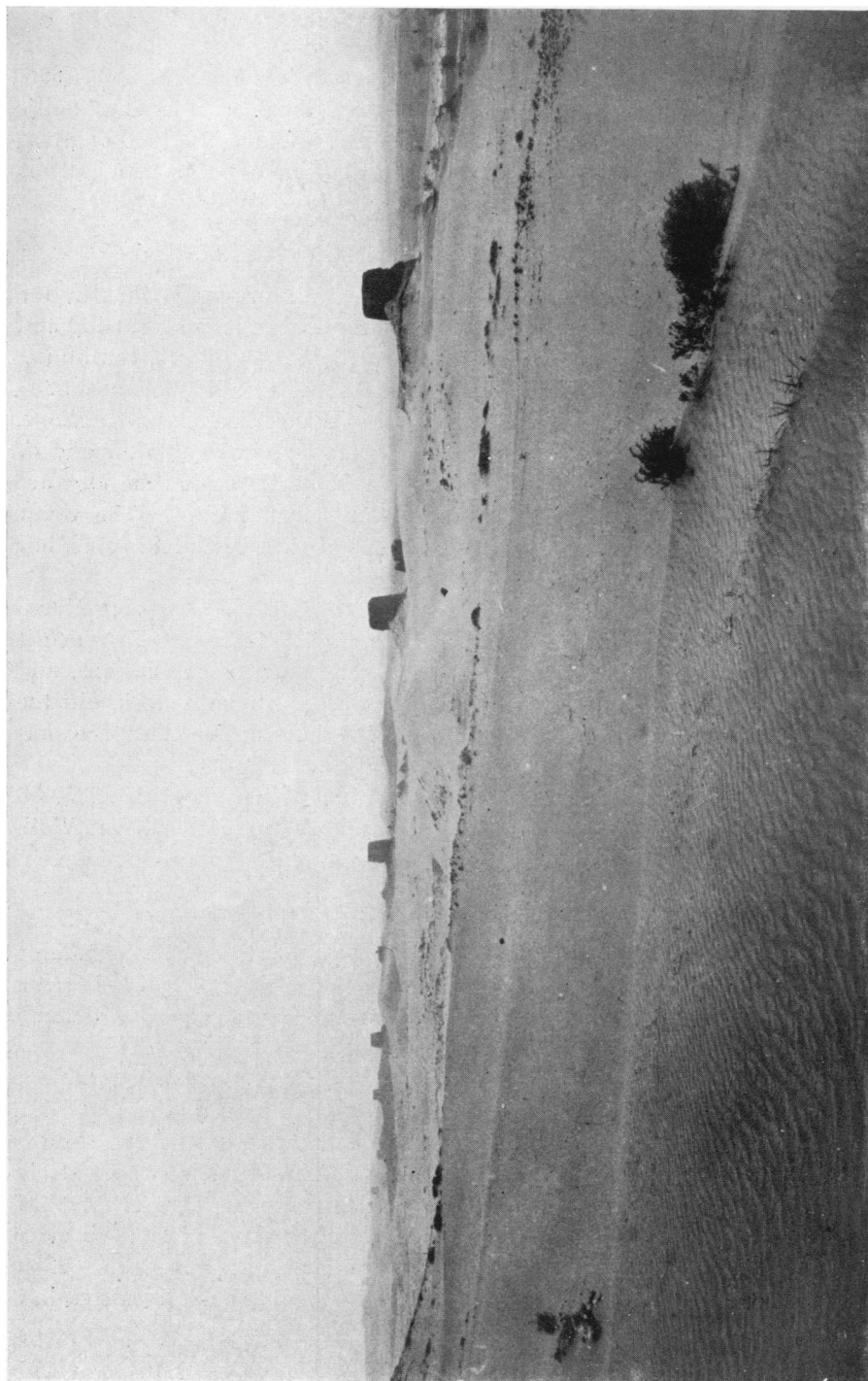


FIG. 16—Towers of the "First Frontier Wall," constituting the boundary between Inner Mongolia and the Province of Shensi, seen from Chang'lopu near Yülinfu. The wall is here being buried gradually by the sands of the Ordos Desert.

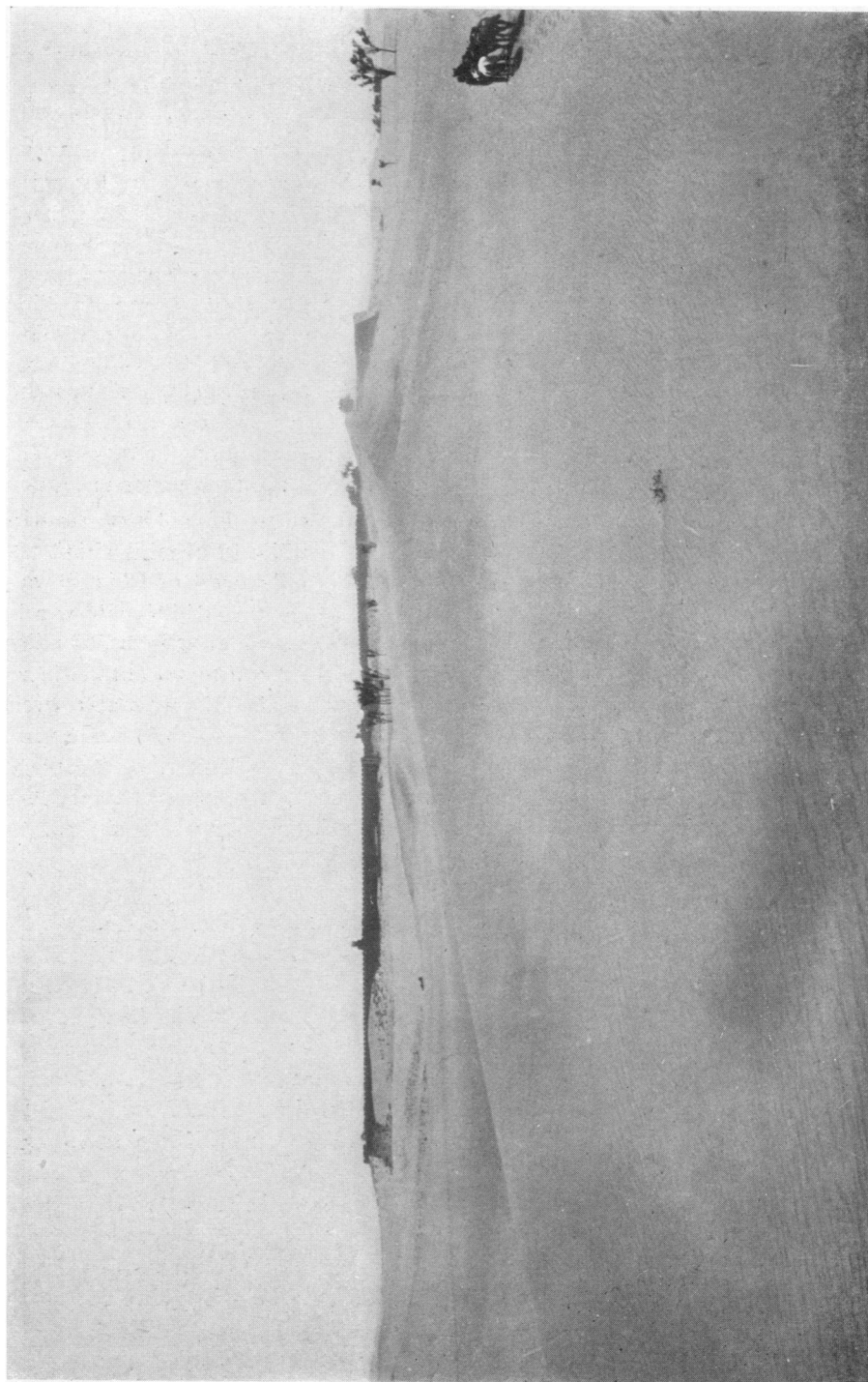


FIG. 17.—The city of Changlopu, 12 miles northeast of Yülinfu, which is rapidly being buried by the sands of the Ordos Desert.



Fig. 18—A temple and the city wall at Changlopu buried by the desert sands. (Photo by E. Day.)

built during the reign of Wu Ti (140-87 B. C.) of the Han Dynasty. The regular garrisoning of the wall continued through the first century before Christ and, over the greatest part of the wall's length, down to the second century of our era.

Dr. Stein ascribes the main purpose of this frontier wall to the necessity of guarding from the Hsiung-nu, a nomadic tribe of Huns who lived in the Mongolian desert, "the territory south of the Sulo Ho, which was indispensable as a base and passage for the Chinese Military

China, as commonly recognized, it is certainly not the western end of the Great Wall system, as other stretches forming part of the same general military system are known in the desert sands beyond. The first person to show that the Great Wall does not end at Chiayükwan was Dr. Aurel Stein,⁸ who visited Central Asia in 1901 and on his second trip, in 1906-1908, traced ruins of ancient frontier walls to a point about 250 miles west of Chiayükwan, or an additional wall length of at least 300 miles. According to authentic records these walls were

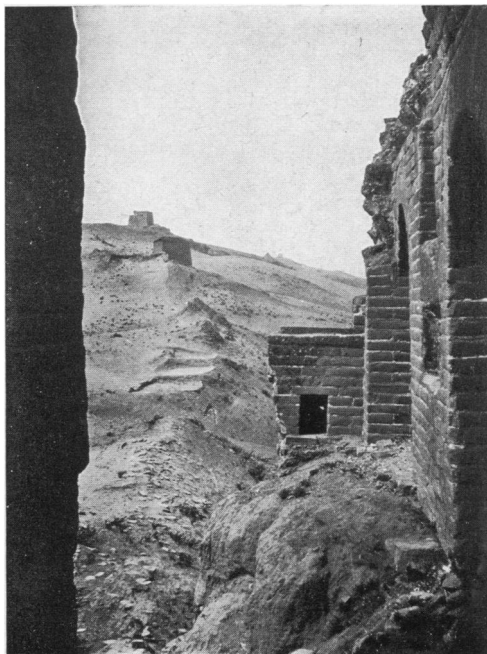


Fig. 19—Looking southwest along the First Frontier Wall from inside a ruined watchtower near Kaokiapu, 30 miles northeast of Yülinfu.

⁸ M. A. Stein: *Explorations in Central Asia, 1906-08, Scottish Geogr. Mag.*, Vol. 26, 1910, pp. 225-240 and 281-293.

forces, political missions, etc., sent to the Tarim basin''⁹ on the eastern edge of the Takla-makan Desert in the Lop-nor region. Stein collected a great number of documents from watchtowers, sentry stations, temples, etc., along the wall. He pays a just compliment to the Chinese engineers for their skill in the selection of the proper course for the wall, which in this section was uniformly 8 feet thick and about 12 feet high, with the usual watchtowers rising to 30 feet or more. In some places just inside the wall the ancient tracks worn during centuries by the feet of patrols are still visible as a furrow 20 feet inside the wall.

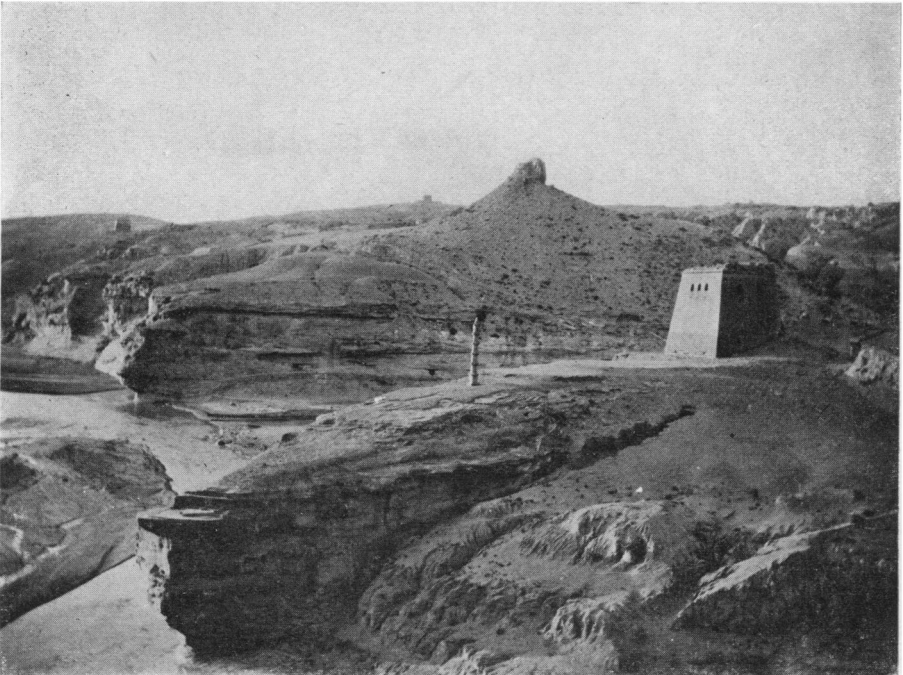


FIG. 20—Ruins of the First Frontier Wall 3 miles north of Kaokiapu. Horizontal sandstone.

Stein observed this wall on the southern side of the Sulo Ho at Anhsi, and on the northern side of the Sulo Ho for 50 miles east, and at a point 95 miles northwest of Chiayükwan. He also maps it 50 miles west of Anhsi at a point 25 miles north of Tunhwanghsien, where is situated his famous cave of temples known as the "Halls of the Thousand Buddhas." Farther west the wall is mapped on the southern side of the Sulo Ho to about 75 miles west of Tunhuang. In intermediate places the wall is in ruins or was not seen. The last observed watchtower was 280 miles due west of Chiayükwan, and we do not know how far the Great Wall extended west through the desert of Kum-tagh.

⁹ M. A. Stein, *op. cit.* p. 238.



FIG. 21.—Yulinfu, northern Shensi. The city, which lies just within the First Frontier Wall, is the center of trade with the Mongols of the southern Ordos Desert.

LENGTH OF THE GREAT WALL

The length of the wall in its entirety may now be considered. The total length estimated by various authorities is:

Chinese legend	10,000 li (about 3,333 miles)	
Li Ung-bing ¹⁰	1,500	“
W. E. Geil (without branches).....	1,250	“
“ “ “ (with branches)	2,500	“
F. G. Clapp (without branches).....	2,150	“
“ “ “ (with branches)	3,930	“

The details of the wall, summarized according to the estimates of the present writer, are:

Great Wall Proper

Shanhaikwan to eastern bifurcation	300 miles	
Eastern bifurcation to Hwang Ho.....	500	“
Frontier Wall along northern Shensi.....	350	“
Ningsiafu to Liangchowfu	250	“
In “panhandle” of China	450	“
In Chinese Turkestan	300	“
Total	2,150	“

Branches and Loops

Manchurian extension	400 miles	
Inner Wall from eastern bifurcation to Hwang Ho.....	400	“
Southern Branch Wall	230	“
Main loop of Kansu	250	“
Tibetan Loop	400	“
Miscellaneous branches	100	“
Total	1,780	“

Summary

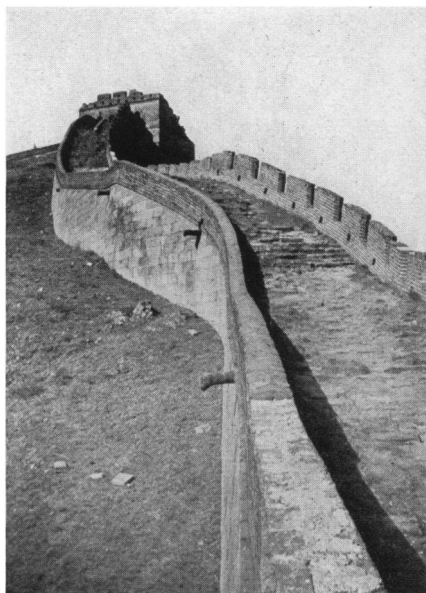
Great Wall proper	2,150 miles	
Branches and loops	1,780	“
Total	3,930	“

THE BUILDING OF THE GREAT WALL

Little has been written on the Great Wall in a comprehensive way, and for that reason many misapprehensions exist as to its position, extent, state of preservation, history, etc. In the first place, one must not suppose that

¹⁰ Li Ung-bing: *Outlines of Chinese History*, Shanghai, 1914.

the Great Wall is a structural unit, or that it was constructed all at one time. A number of separate walls, dating back several centuries, had been constructed bordering on the domains of the Hsiung-nu before the reign of the so-called "First Emperor," the tyrant Hwang-ti, who buried alive hundreds of scholars and burned nearly all the books of the Empire. One of the separate walls, for instance, was built as early as the year 469 B. C. by



FIGS. 22 and 23—Views of the Great Wall at Nankow Pass to illustrate the method of its construction. In places the top of the wall is level enough for an automobile, as in Fig. 13; but in others it consists of massive flights of steps, as in Fig. 22.

Prince Chung-shan.¹¹ The "First Emperor" (246-210 B. C.) in reality united and strengthened the existing walls. The building of new walls, however, did not cease with the emperors of this dynasty. There is no doubt that during the past 2,200 years the Chinese have built more than a dozen Great Walls of as many varieties of construction.

Furthermore, it is evident from the tablets which are frequent along the Great Wall that repairs were made from time to time. For instance, the wall was repaired in the reign of Hsien-Tsung (1470 A. D.) of the Ming Dynasty, and 200 miles more were added in 1547 A. D. Some repairs were made as late as the beginning of the Ching (Manchu) Dynasty, since when no attempt has been made to keep the wall in repair.

¹¹ Edouard Chavannes: Les plus anciens specimens de la cartographie chinoise. *Bull. École Française de l'Extrême Orient*, 1903, pp. 221-222.

METHOD OF CONSTRUCTION

The height of the Great Wall is not uniform throughout its extent. It

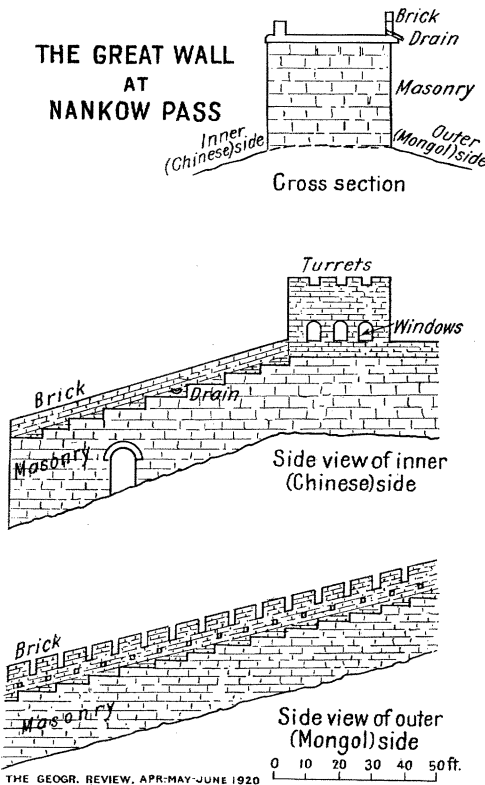


FIG. 24—Cross section and side views of the Great Wall at Nankow Pass.

averages 22 feet but varies from 20 to 50 feet; the base is 15 to 25 feet thick, and the top 12 feet or more; in places the wall is solid and level enough to support an automobile; but in others it consists of massive flights of steps. At intervals averaging 600 feet are towers 40 to 60 feet high, formerly used as sentry stations for the protection of combatants and as vantage points in fighting.

The entire eastern section and that at Nankow Pass are built of massive masonry and huge bricks and are mostly well preserved; but farther west the wall is much less substantial, has fallen in many places into decay, and in Kansu Province resembles a large mud bank. In places it was constructed of earth, in others of brick or stone; and in some parts the towers are in far better state of preservation than are the

intervening portions of the wall. In many places tablets (generally consisting of a lengthy enumeration of the officials in charge of the work) are placed to record the construction or repairs to the wall. Certain indications found in the brick work, in legends and in tablets, indicate that in some parts the towers were built first and then the walls constructed between them.

In many parts of Shensi and Shansi the character of the loess formation is such that it can be simply cut out into the form of a wall—which plan in reality was very effective. The material was simply split down vertically and then faced with stone. A moat bordered the wall through parts of these sections. In other places the wall had to be built up of loess, above

the plain. A wooden framework was constructed; the loess was thrown in, watered, and rammed; then the framework was removed, leaving the wall fully constructed. Even where built of loess the wall, in spite of long neglect, is generally distinctly traceable between the towers.

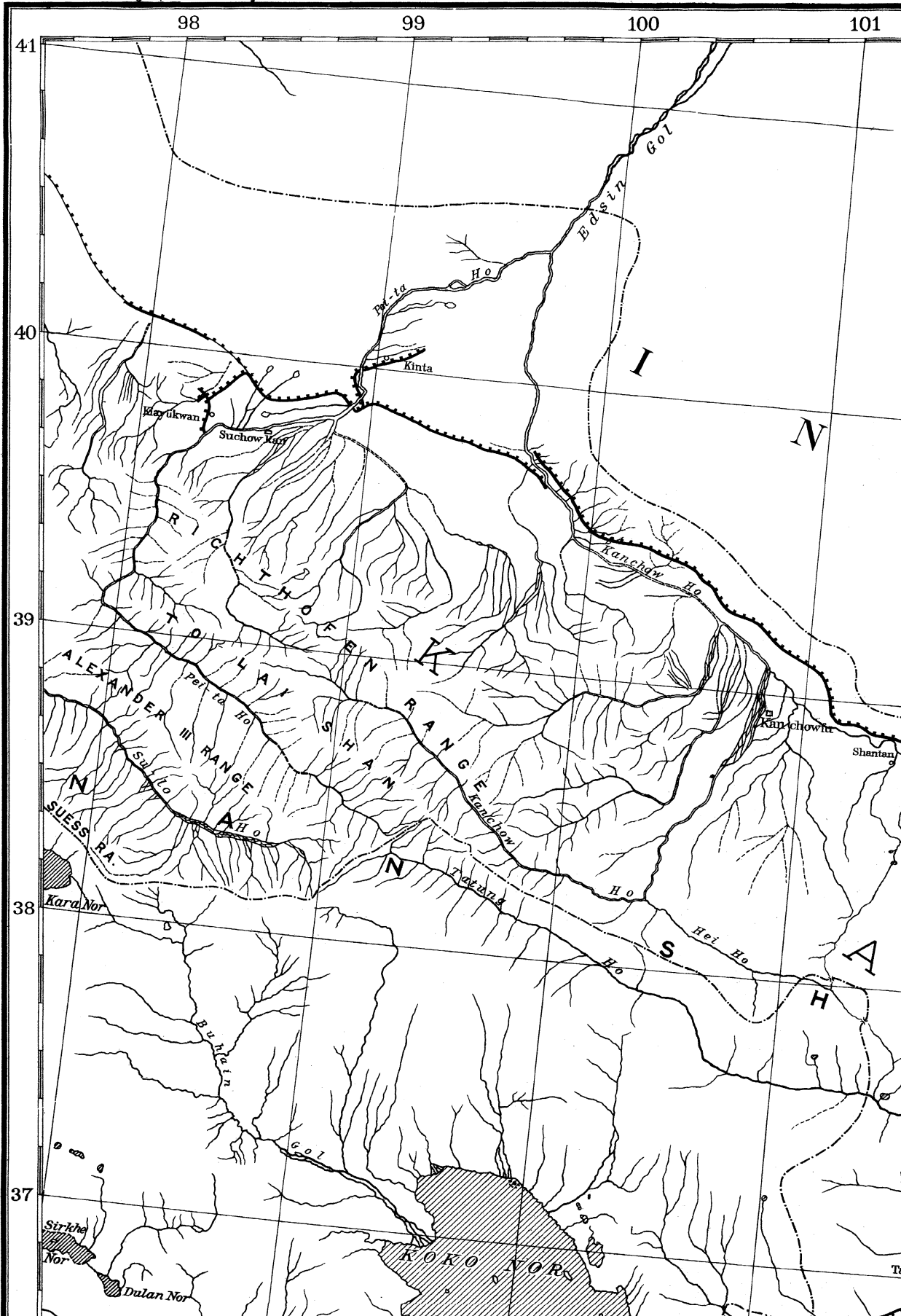
WALL STRUCTURE AT NANKOW PASS

The Great Wall at its best can be judged from the section at Nankow Pass (Figs. 1, 13, 22, 23), where it was well constructed, is in an excellent state of preservation, and is typical of the eastern arm extending to Shan-haikwan, a distance, following meanders, of over 300 miles. The cross section and side views at Nankow Pass are shown in Figure 24.

At Nankow Pass, and generally in the mountains, the wall is composed of granite blocks for a height of 20 feet above its base, the blocks being five feet long and one foot square, set in two parallel furrows cut 25 feet apart in the solid rock. The blocks are not rough stone but are accurately cut and have evidently been hauled long distances from the quarries. Some blocks are as much as 14 feet long by 3 or 4 feet thick. The upper part of the wall is composed of bricks, some as much as 22 inches long, others 14 inches square and $3\frac{1}{2}$ inches thick and, as has been said, of better quality than most brick made at the present day. We do not know how the heavy bricks were transported from place to place across the almost impassable mountains; but one legend says they were dragged by goats. The mortar that holds the bricks together is better than the Chinese can make at the present time. The Chinese have great faith in it as a medicine and allege wonderful cures with certain prescribed mixtures.

At intervals of a few hundred feet are doorways leading to the inner (Chinese) side and steps leading to the top, so that soldiers could easily ascend to defend it against invasion. Every few hundred feet are the watchtowers, 30 to 40 feet square and 40 feet or so in height. The towers were carefully numbered by the builders, as, for instance, "Tower No. 55 of the Black Letter Wu Series." The top of the wall in the Nankow section is a roadway 14 feet wide. At intervals of 50 to 100 feet are stone drains to allow rain water to run off the roadway, and the foresight thus shown has helped its preservation.

The engineers who laid out the wall seem to have generally selected strong lines of defense, such as mountain crests and narrow gorges. It is easy to understand the heavy fortifying of the passes and plains, though not so easy to judge the reason for so uniformly fortifying the mountain crests. Huge permanent garrisons were quartered in fortified camps behind the wall. When not fighting, the soldiers engaged in agricultural pursuits, in which they were encouraged by the government through a system of land grants.



MAP OF THE GREAT WALL OF CHINA

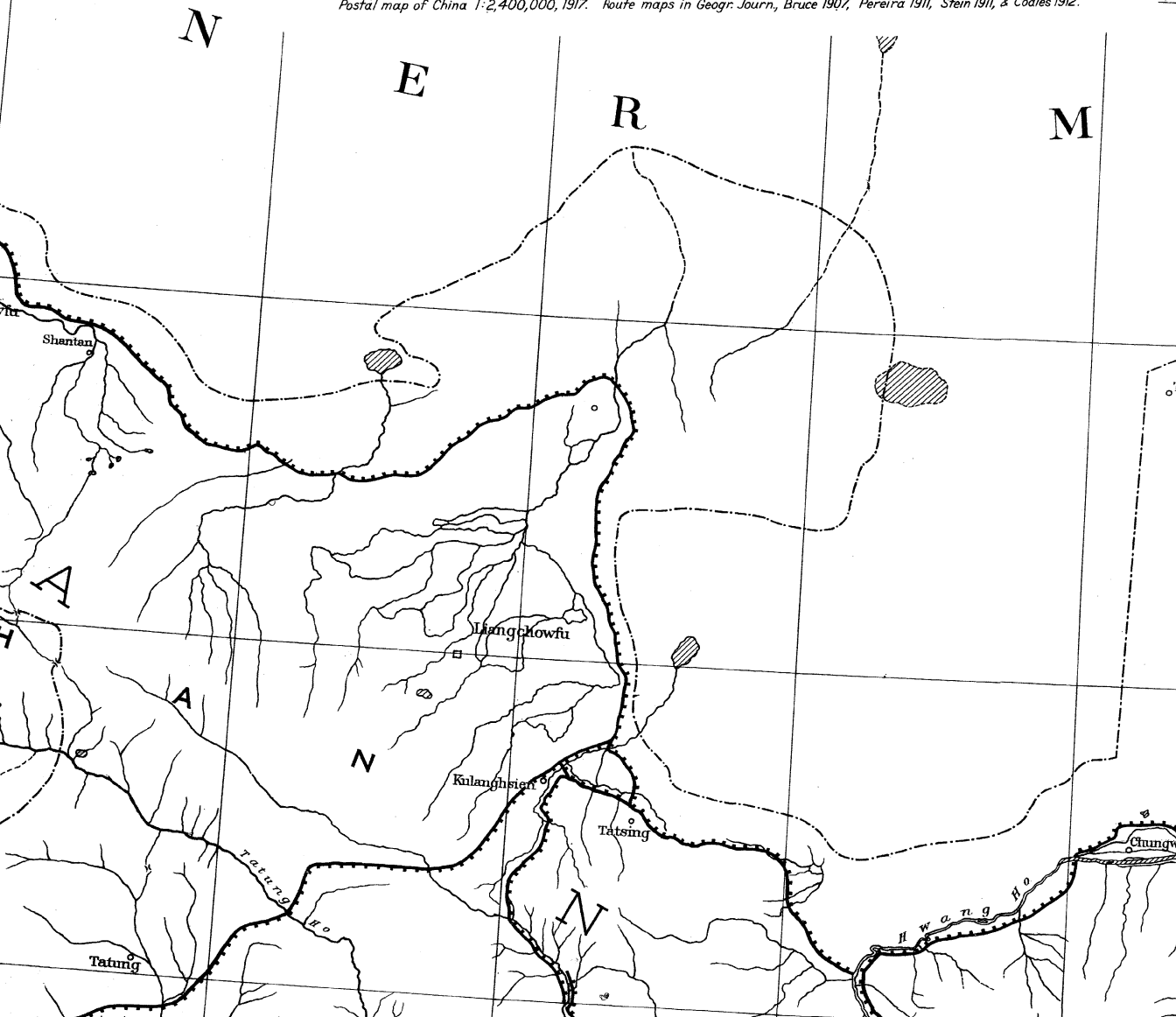
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10 0 10 20 30 40 50 60 70 80 90 100 miles

— The Great Wall (drawn continuous though often in ruins and broken or not surveyed).
 Routes of F.G.Clapp, M.L.Fuller, V.H.Barnett, E.L.Estabrook and F.H.Herald in vicinity of Great Wall.

Topography and course of Great Wall based mainly on:

Sketches of parts of Great Wall 1:62,360 and 1:221,760, furnished by F.G.Clapp.
 Karte von Tschili und Schantung 1:200,000, Kartogr. Abteilung der Kgl. Preuss. Landesaufnahme 1907.
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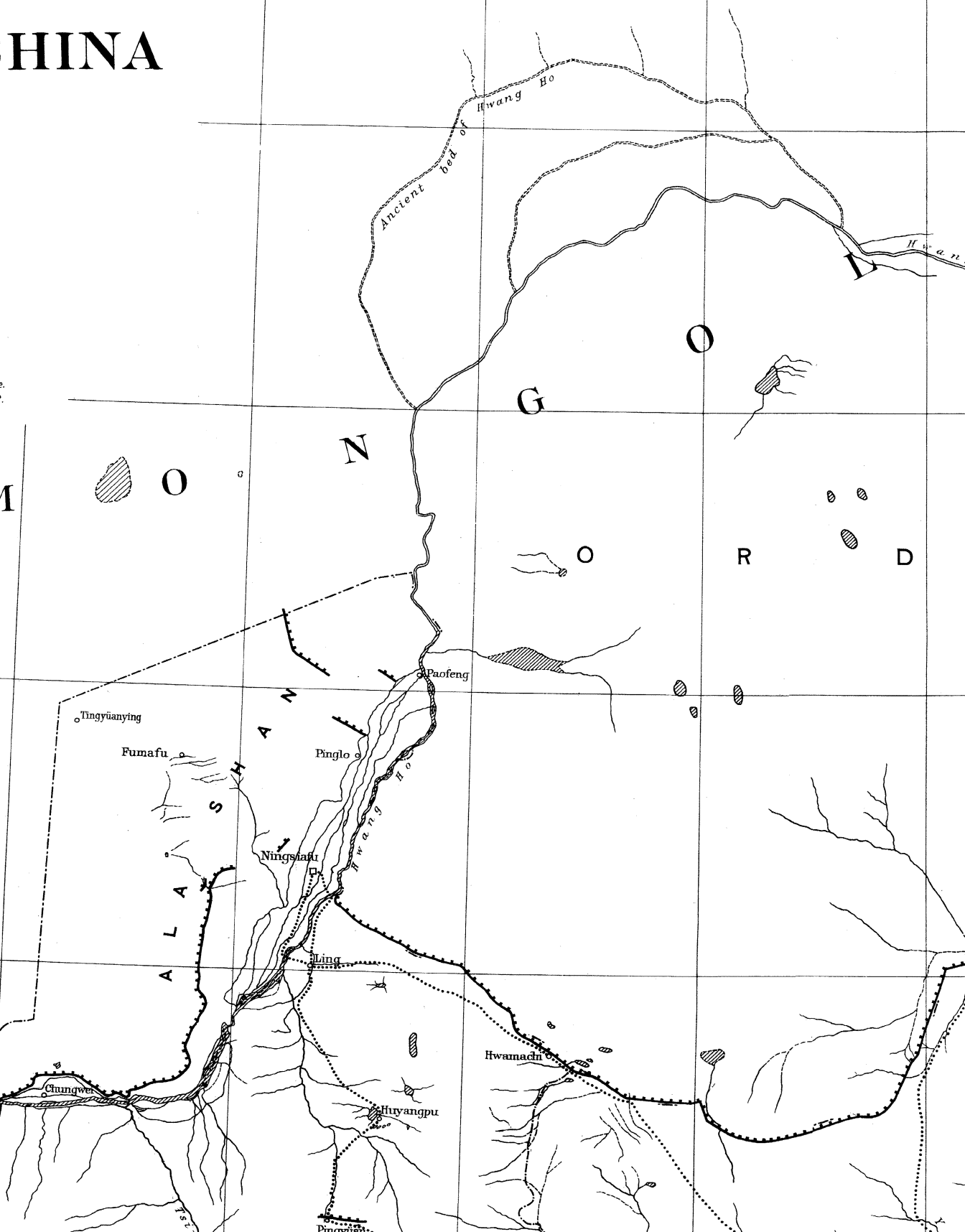
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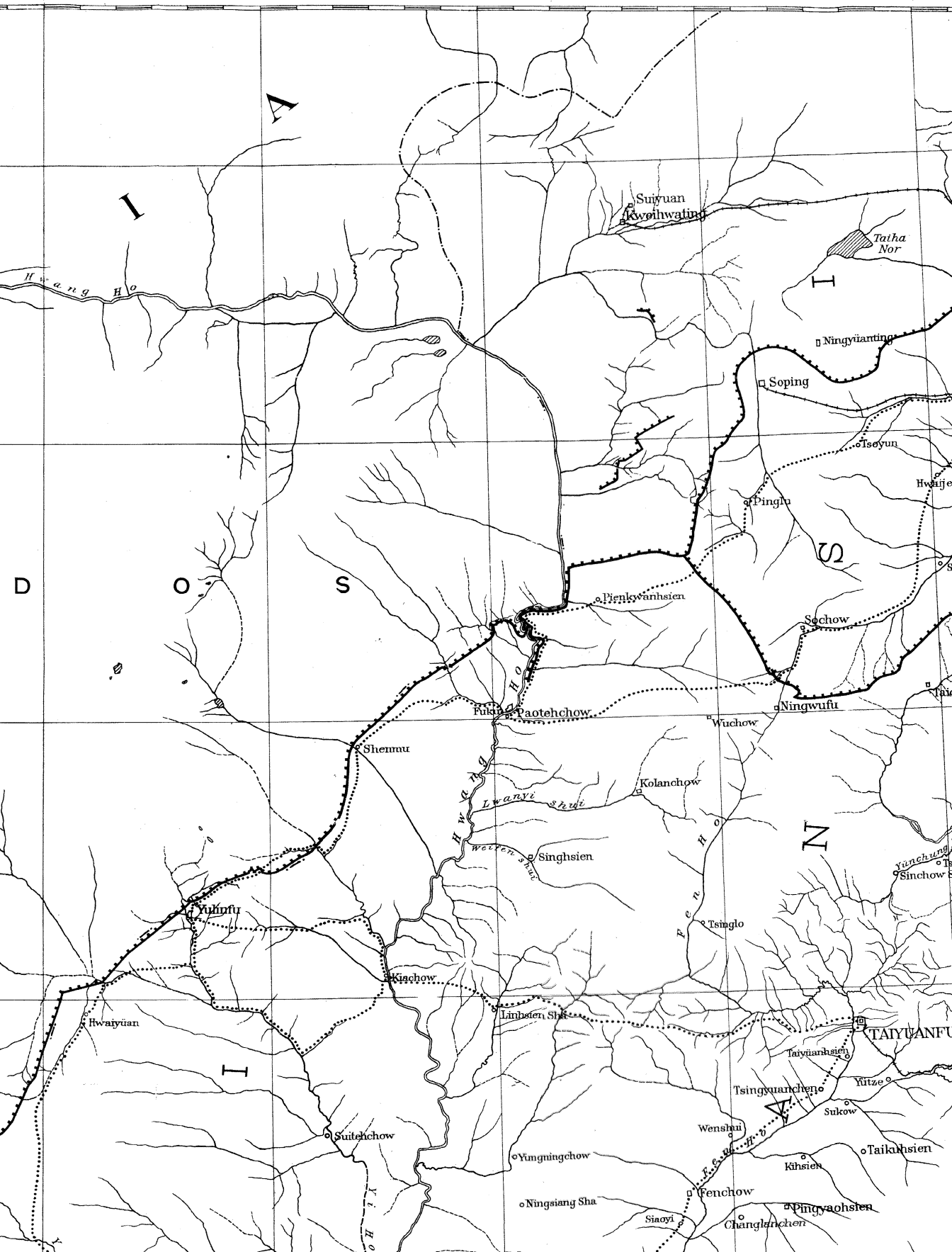
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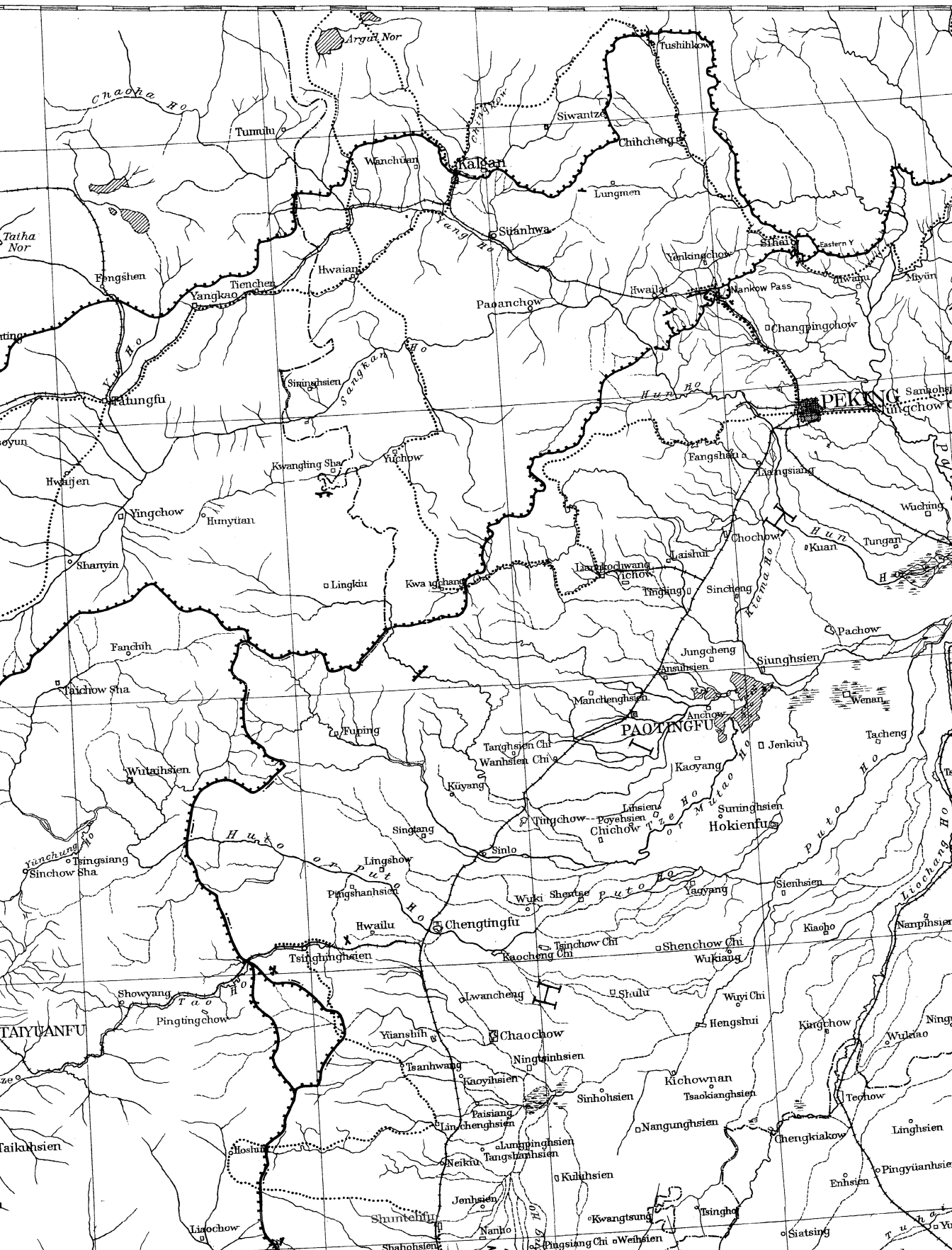
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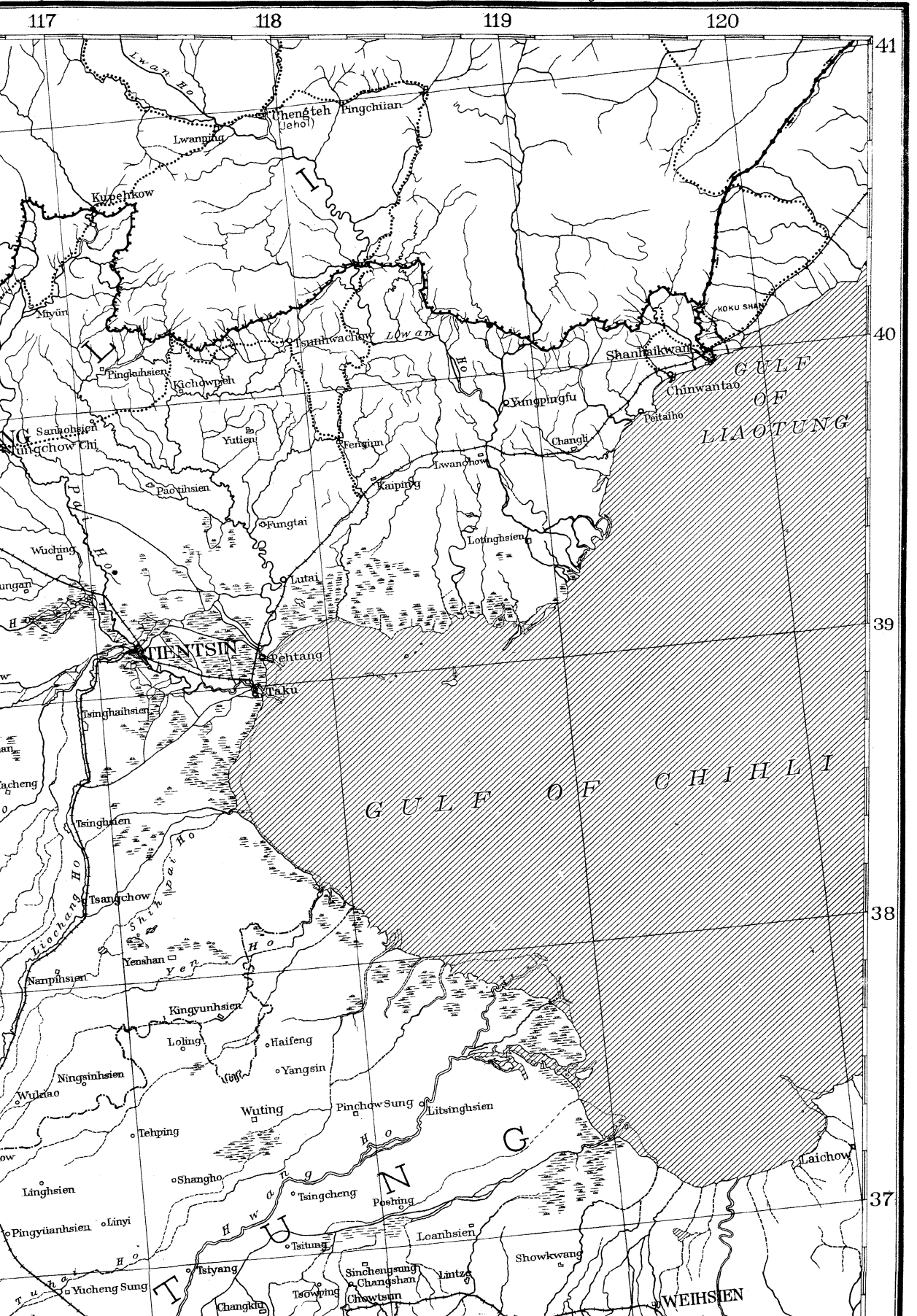
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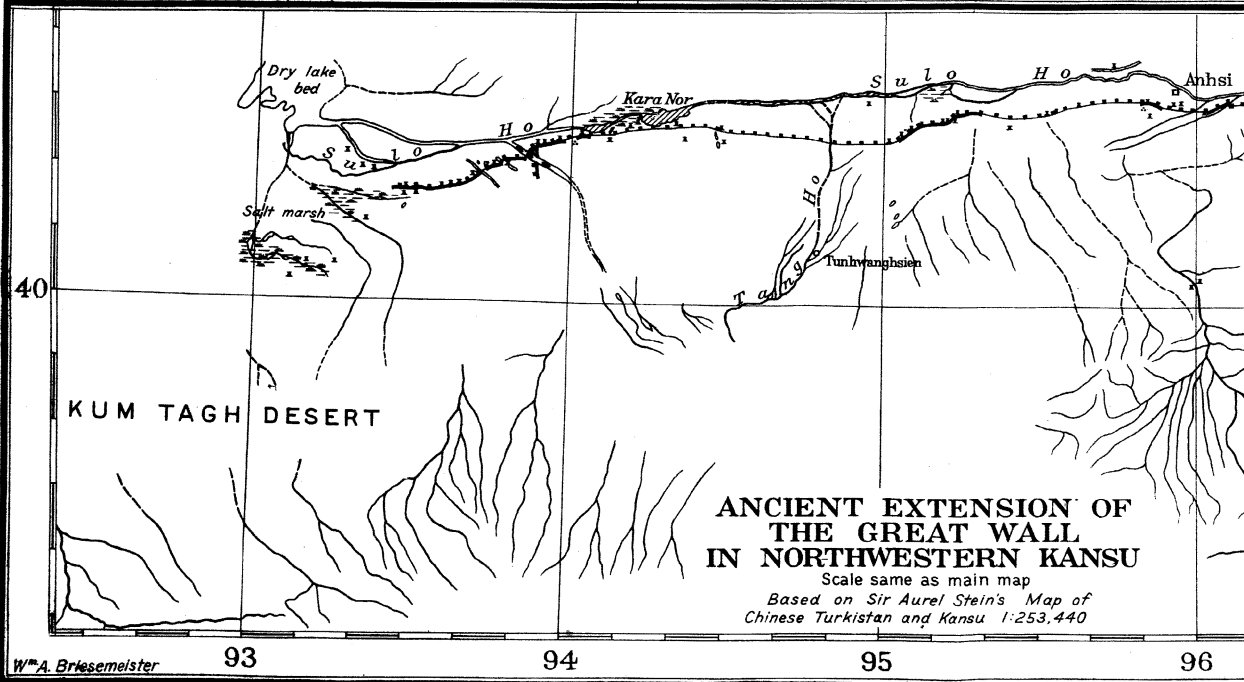
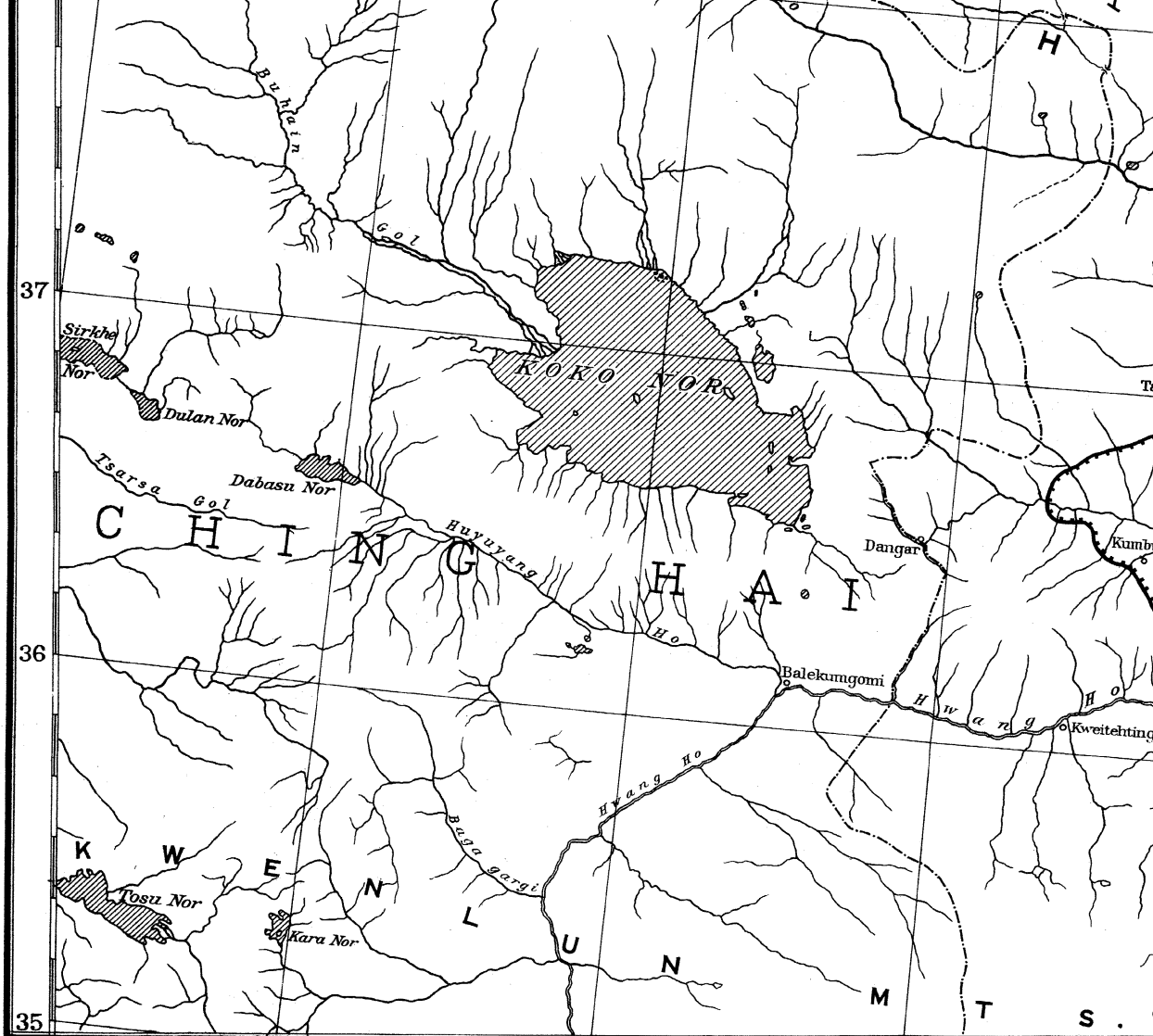
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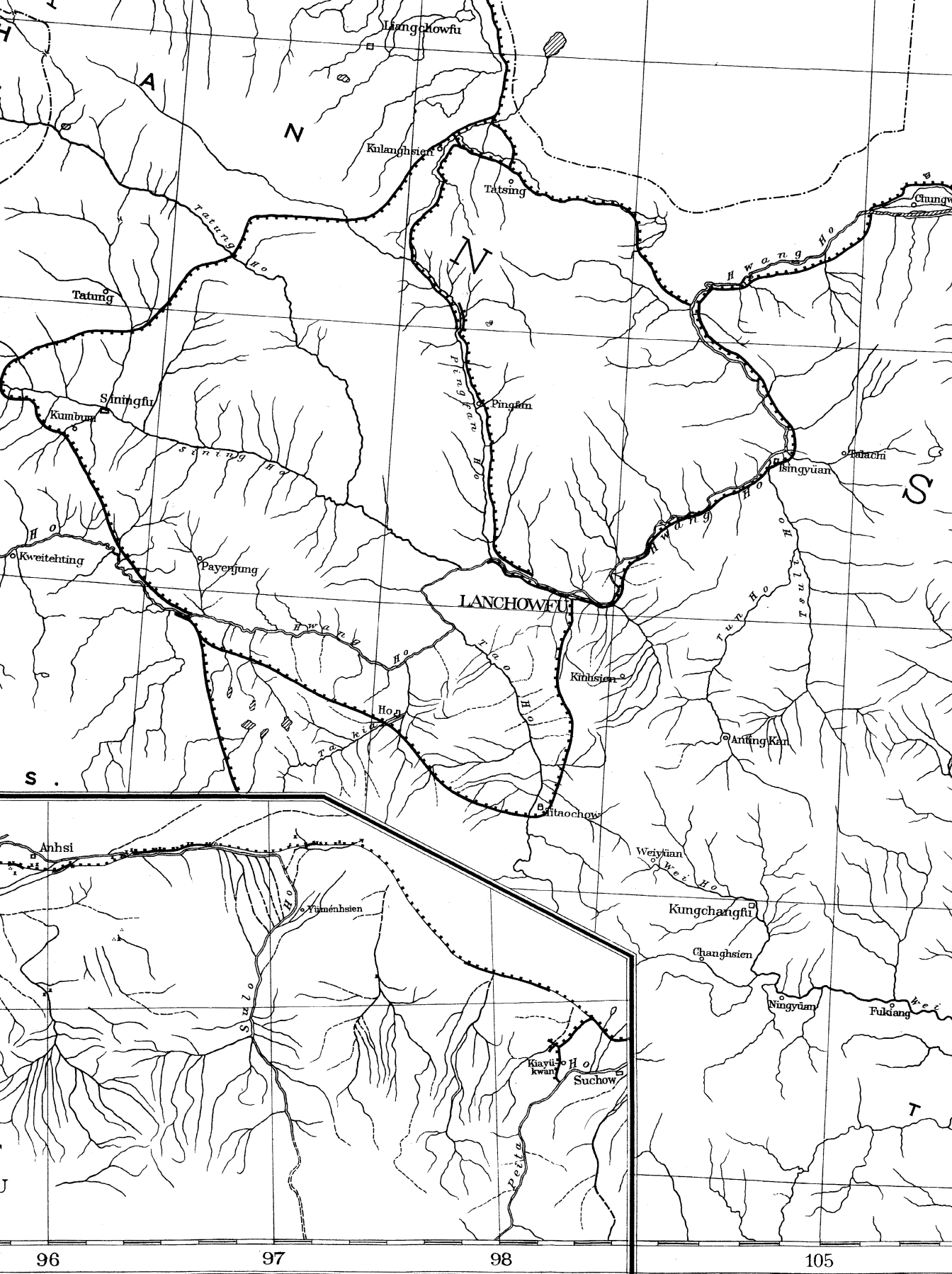


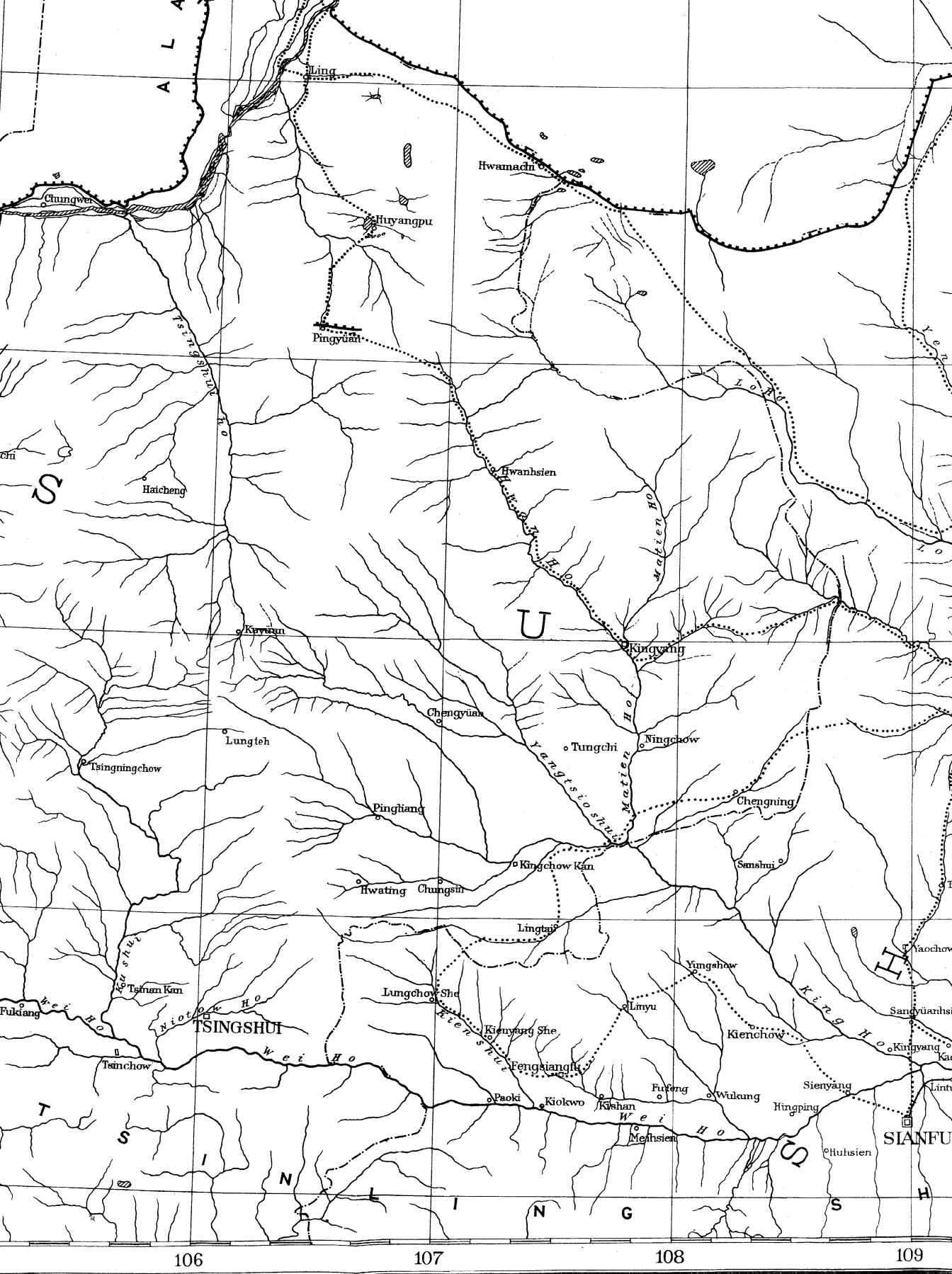










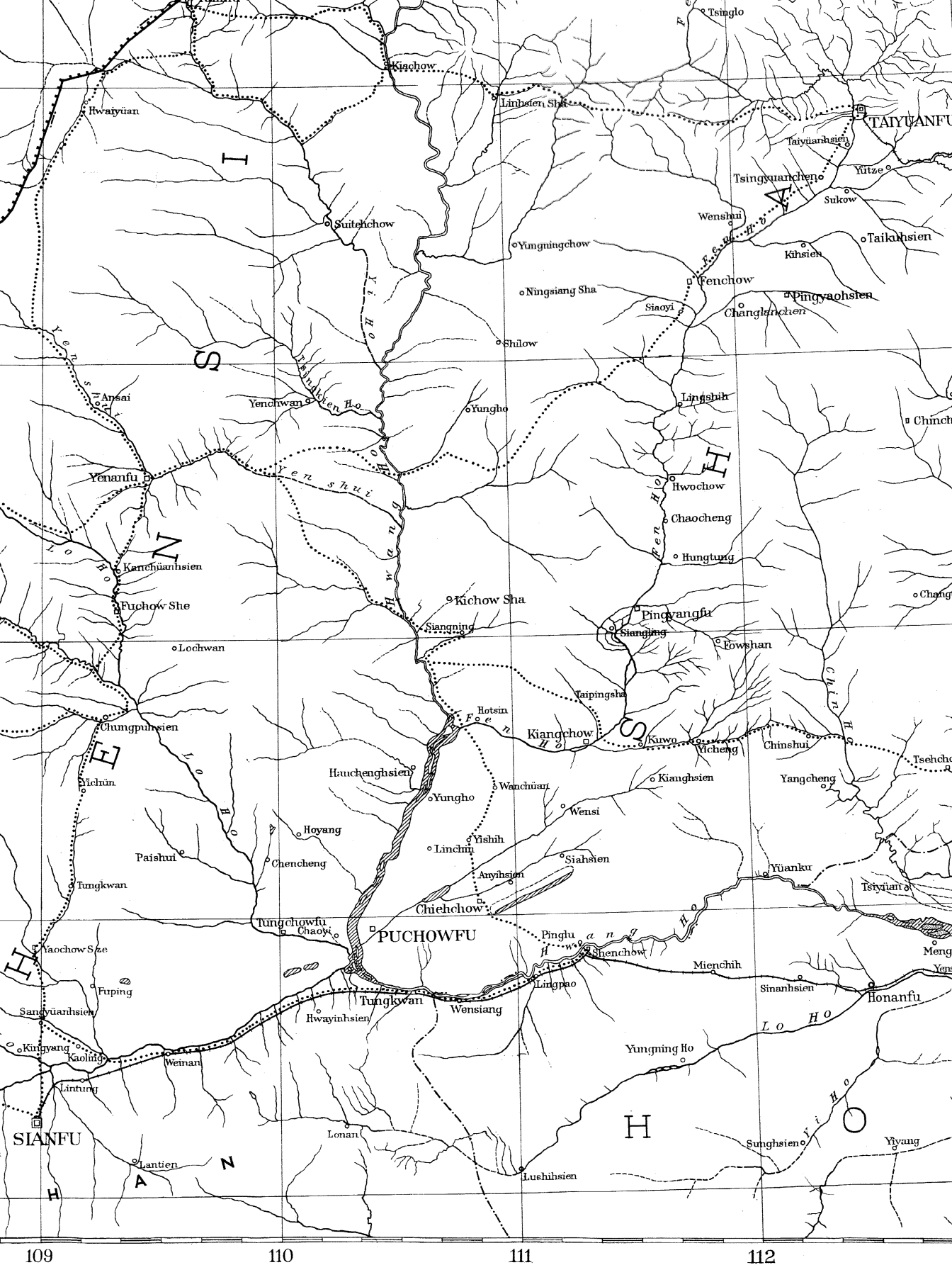


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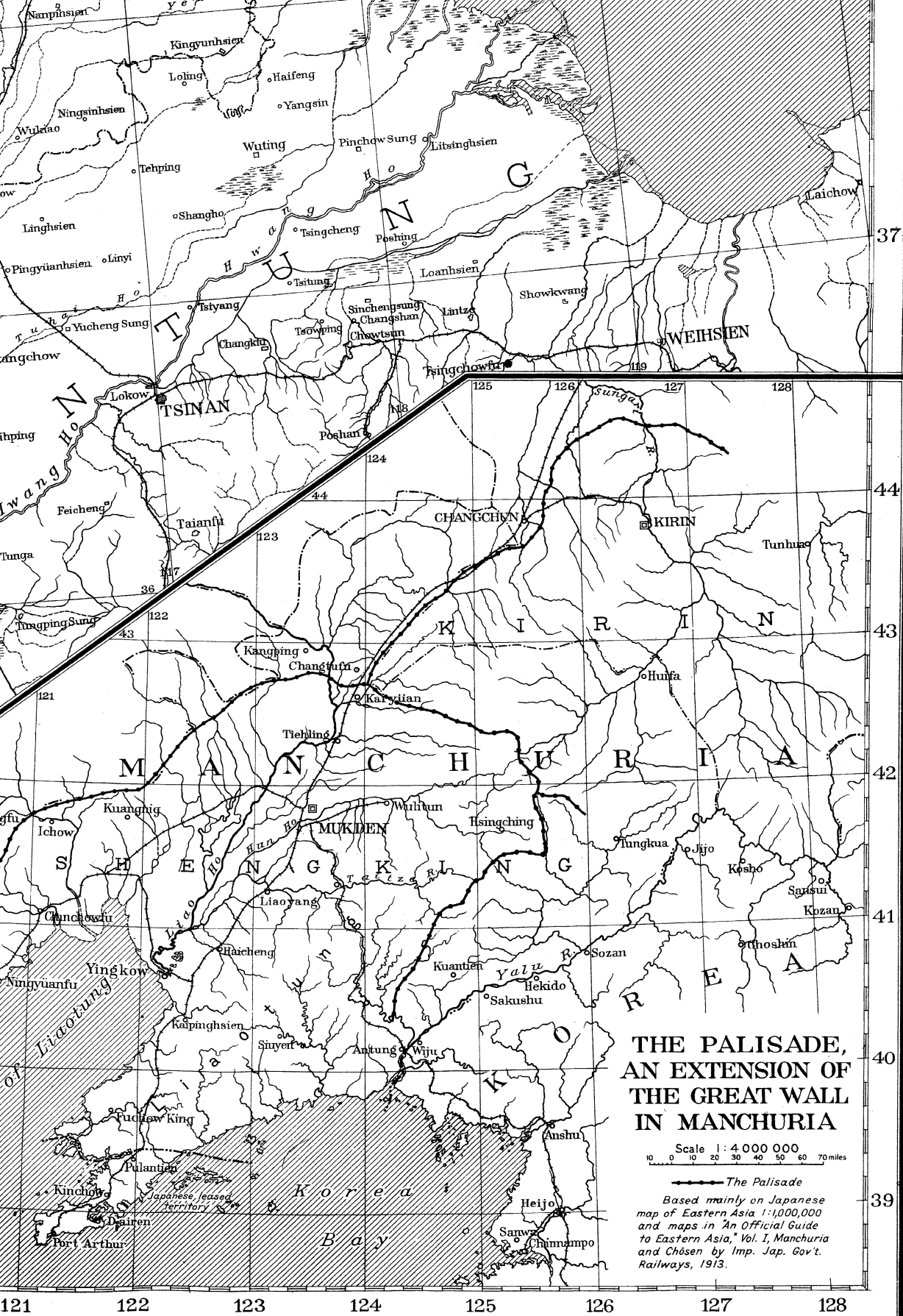
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THE "GREAT WALL" OF THE FUTURE

The Great Wall is no longer needed; it has served its purpose. The protection it afforded against Mongol and Hun consisted not only in its substantial masonry or piled loess, but in its wonderful continuity, in the alertness of its defenders, in its system of watchtowers and signals, and above all in its expression, concrete and symbolic, as a barrier boundary beyond which no invader could come without incurring the wrath and vengeance of an infuriated people.

One foe alone has not been stopped by the Great Wall. This is the sand of the Desert of Gobi that is driven by wind and climatic conditions southward mile after mile, year after year. Owing to the winds and the deforestation of the country, which may be called China's most serious mistake, the desert will continue to move southward and in a few thousand years render large portions of Shensi uninhabitable. Is there no remedy for this condition? The writer believes there is. A new Great Wall should be constructed, not of brick or stone or earth guarded by soldiers, but a forest barrier guarded by expert foresters. A forest one mile wide along the northern border of the country would probably suffice; in Shensi, at any rate, the project is feasible. Irrigation, too, would assist in reclaiming the desert. Here at least is a vision to encourage Occidental democracy.